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INDUSTRIAL MEDICINE AND SURGERY THE NEW SPECIALTY*

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CHICAGO

Preventive medicine and preventive surgery within the last five years have become a very active factor in the industrial life of our country. Our modern industrial concerns have employed experts to study their expensive, complicated machines, in order to preserve their mechanism and obtain their maximum of efficiency.[1] The human machine alone was neglected.

Gradually, due to both external and internal causes, a new, humanizing influence pervaded a few of these industries, and they began to consider the welfare or betterment of the employees from various angles. It was soon apparent that this movement reacted to the welfare of the employers. The realization of this mutual benefit to employee and employer marked the birth of an entirely new economic point of view which is rapidly extending to every branch of our American industrial life.

The conservation of life by the prevention of disease and accidents among employees, the basic principle underlying all forms of industrial medicine, is the greatest influence for socialization in our country at present. And to the company surgeon of today and of the future is given the opportunity of extending medical science into this vast, unlimited field of endeavor. In the past, and in many industries at the present time, the care of those meeting with accidents has been the chief duty of the company surgeon, with very little attention paid to the protection, the health and the working ability of the individual employee. Likewise, concerns having company surgeons often fail to realize the great economic advantage at their disposal for increasing efficiency by utilizing the expert knowledge of their physicians along these lines.

Due to this ignorance on the part of so many industries and the lack of vision and enthusiasm on the part of many company surgeons, this field of medicine has been considered very narrow, and the physicians engaged therein have been insufficiently paid, resulting in a restricted growth, and have been viewed with more or less contempt by the majority of the profession. But when a company surgeon realizes that for greater efficiency an employer has the right to demand a healthful, physically and mentally normal working force, and that the employee would be, and is, justified in demanding a healthful, sanitary working place, uncontaminated by diseased fellow employees, and that business principles, as well as a spirit of humanitarianism, demands all his powers for the conservation of the life and limb of the employee, and when he attains the vision of all that this means, and brings to his work an undying enthusiasm and a knowledge sufficient to master every detail, then he becomes of unlimited value to the concern for which he works, and is remunerated accordingly. And, most gratifying to him personally, he is recognized as an equal by his fellow physicians and as an advanced student in the science of medicine.

It is apparent that the company surgeon of the future must be a very broadly trained physician. Some of the largest industries can afford to have several doctors on their staff and thus can divide the medical work into its various specialties, but even here the chief of staff must be trained thoroughly in all branches of this work. In the smaller corporations, however, the company surgeon must be a surgeon, an internist, a diagnostician, a sanitation expert and an all-round medical utility man. As he follows the growing ramifications of his work and realizes its influence on the individual employee, its influence on the industrial concern and finally its influence on the community and society in general, and sees the state being forced to assume the responsibilities that his work is making so apparent, then the company surgeon gradually awakens to the fact that he has become a sociologist as well as a physician. Armed with this broader point of view, he becomes not only a doctor for the ills of the individual, but a physician to the ills of society.

Industrial medicine and surgery is rendering a wonderful service to the great mass of workers, but it is also rendering a greater service to those physicians engaged in the work. It is molding them into specialists in the great medicosociological problems which are confronting this country more and more.

The size of the medical staff, the size and location of the doctor's office or company hospital, and the amount of work necessary to conduct a comprehensive plan of medical and surgical supervision of the health of employees must depend chiefly on the size, number of employees and the type of work of each industry. These are details which each company surgeon must work out, and which will certainly be changed with the growth of his work.

The industry with which the writer is connected has gradually extended its medical staff and equipment from a four-room office with one doctor and two nurses in 1909, to an eighteen-room office with seven doctors, twelve nurses and two dentists in 1916. The doctors spend three and one-half hours per day at this work, so rotating that there is always some one in charge of the company office. While many of our best company surgeons devote all of their time to the industries employing them, yet, as a rule, the various corporations will find that they can secure better-trained and broader physicians if they require them to give only a part of their time to this work. The situation is quite analogous to that found in our leading medical schools. The heads of departments and those associated with them give a portion of each day to teaching and clinical work, the rest of their time is given to private practice, study and investigation. Because of their clinical experience and the broadening influence of their private and public work, these men become the leaders and scholars in our profession and their influence in the community at large is much greater than it would be if they devoted their entire time, on a salary, to teaching in a medical school. Thus with a company surgeon, the greater name and prestige he can build up for himself in his community the greater his value to the industry with which he is connected and the greater his influence over the employees and their confidence in him.

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* This article and the one by Dr. Clark which follows are parts of a symposium on Industrial Medicine. The remaining articles by Drs. Lemon and Smith and the discussion will appear in THE JOURNAL, January 13.

THE WORK OF THE MEDICAL STAFF: PREVENTIVE SURGERY

Those engaged in emergency accident work for any industry are naturally trained, by the very nature of the work, to view every case from the economic standpoint of both the employee and employer. An accident occurs, and at once we plan the subsequent handling of the case with these four fundamental principles in mind: (1) how to prevent a recurrence of the accident, (2) how to aid recovery the quickest, (3) how to prevent permanent disability, and (4) how to avoid a fatal termination of the case.

The welfare of the patient, the protection of the other employees, and the interests of the employer all demand the careful consideration of these principles.

The evolving of the simplest and yet most adequate methods of enforcing these four principles is the foundation of preventive surgery. And just as prevention of disease will eliminate some surgery, so the prevention of accidents will eliminate vastly more, and the best surgeon of the future, whether engaged in industrial work or otherwise, will be the surgeon who is very conservative in operating, but very radical in the prevention of all causes that make surgery necessary.

The safety engineers with their safety appliances and the educational propaganda of all safety first movements have been instrumental in preventing a great many accidents, especially from machinery. But the alert emergency surgeon, by carefully analyzing the cause of every injury that comes to him for treatment, and then by cooperating with the safety engineer, making certain that that cause has been removed, becomes one of the greatest factors in all accident prevention. Very often the cause for the accident lies within the employee himself, in his physical or mental condition at the time it occurred. It is therefore the paramount duty of the surgeon to carefully analyze the condition of that employee in his search for the cause. This analysis must include a thorough physical examination and mental tests, and an examination of both the working and home conditions of that employee. This last duty can be performed by a competent trained nurse, who is the greatest adjunct to the company surgeon in all his work. The removal of the cause, whatever it may be, or wherever found, in every case of accidental injury that comes before him, is the duty of the preventive surgeon and is the most logical and most economic form of service that he can render to the employee or employer. And the time is not far distant when municipalities, the state, and the federal governments will awaken to the great waste of life and limb, the result of accidents, not only in industries, but in the homes, in the streets and in every branch of our daily walks of life. And we as surgeons will be required to do our share in analyzing every case of injury brought to the office or the hospital and report the same to the proper authorities, so that the cause for that accident can be removed, just as we are now compelled to report on contagious diseases. And we as surgeons will look backward with saddened hearts on these dark ages when our sole service to society was merely the repair of the frightful injury to the individual, or simply pronouncing him dead, without a single thought given to preventing some other unfortunate from suffering a similar accident.

The immediate care (and by immediate I mean within a very few minutes) of every one injured, no matter how slightly, is another most important duty of preventive surgery. The first aid movement, which is sweeping the country under the leadership of Dr. Joseph Bloodgood, is one of the best signs that the surgeons are alive to prevention. But every first aid man or woman must be taught that he is only for first aid, and every first aid kit must contain supplies only for first aid. There should be a bottle of tincture of iodin (5 per cent. is sufficient) and a bottle of applicators, a bunch of sterile dressings put up singly in envelopes or paper, a few large pads, sterilized, and to be used in case of hemorrhage or large wounds, bandages and a constrictor. The constrictor I advocate is a stout muslin bandage rather than a rubber tourniquet, as it is safer in the hands of a layman. You may add to this a bottle of aromatic spirits of ammonia with directions as to its use, but no other medicines are indicated. The industries must be taught that the safest and cheapest first aid for them to employ is a doctor in a company office located at the plant where he can render immediate surgical care to every one injured, and at the same time can supervise the health of the employees. In the outlying portions of a large plant or in the dangerous departments the employees may injure themselves in such a way that first aid is necessary until they can reach the doctor's office. In such departments in one industry I have placed first aid supplies orderly arranged in substantial looking boxes. But on these boxes, at the head of the directions for the use of the supplies, I have this warning:

> READ CAREFULLY!
>
> This is a FIRST AID OUTFIT ONLY. It is not to be used for subsequent dressings. The purpose of the *First Aid Man* is not to replace the *Doctor*.
>
> Send every injured employee to the Doctor's office AT ONCE NO MATTER HOW SLIGHT THE INJURY. Use these supplies for temporary dressings until the proper medical care can be obtained.

Two years ago I obtained statistics from a number of industries and accident insurance companies and found that it was the minor accidents, such as scratches, pin pricks, nail wounds, splinters and small cuts that caused the largest amount of disability, and this disability was usually due to infection. Infection in major injuries was comparatively rare. These facts are due to the difficulty of preventing these minor accidents, and because an employee as a rule does not seek medical aid for a slight scratch or cut until it becomes infected, whereas a serious injury forces him under the care of a surgeon at once To combat these minor accidents we have resorted to an educational propaganda against them, the removal of every possible cause for them, and the management insists and enforces the rule that every injured employee must report to the doctor at once no matter how slight the injury But the best preventive surgery measure thus far adopted is the immediate use of tincture of iodin on all wounds that break the skin Every department is supplied with from one to ten bottles of tincture of iodin and applicators (cotton rolled on the end of a toothpick) held in containers made as attractive as possible and placed in conspicuous places Directions on the box tells the employee to paint every pinprick, scratch, cut, puncture wound etc, with the iodin at once and then he must report to the doctor's office at once The use of the iodin alone is not sufficient Reporting to the doctor at once is not sufficient But use the iodin at once and then come to the doctor at once Reaching the doctor may take five or ten minutes, but the use of the iodin does not take over a few seconds So it is the immediate disinfection of the wound with the application of dressings very shortly afterward that gives the results

In 1909 I first introduced this use of tincture of iodin among employees and since then it has become quite universally used among many industries Several company surgeons still raise objections to its use and cannot see its superiority over other antiseptics Many employees so have the habit of using hydrogen peroxid that it is difficult to replace this usually inert liquid with the iodin The actual figures as set forth in a previous publication[1] show conclusively that the results warrant its use From 1909 to 1912 there was a reduction of 38 per cent in the number of hand infections At that time the management became more active in enforcing these rules In 1912 out of 2,693 accident cases reporting to the doctor's office, 28 6 per cent became infected In 1915 out of 5,000 accident cases reporting to the doctor's office 10 per cent became infected Most of the infections in 1915 occurred among new employees and all of them except twenty-four failed to follow the instructions concerning the use of iodin and reporting at once Not a one of the twenty-four who used iodin were infected sufficiently to require opening, neither did they lose any time from work Thus among the injured employees who use iodin at once and report to the doctor at once, less than two tenths of 1 per cent become infected

After an accident has occurred in spite of all our methods of prevention then it is the duty of the preventive surgeon to so institute the best form of active treatment at once that he will secure the quickest recovery, the least deformity, and prevent a fatal termination Temporizing methods by the surgeon are to blame too often for great losses to both the employee and employer By temporizing methods I mean trying office treatment or home treatment when the best hospital treatment should have been instituted at once, failing to watch carefully for the earliest indications of threatening complications, leaving the patient too much to the care of an assistant or an intern, and failing to take advantage of every known means of diagnosis and of every known method to attain the quickest and best results

PREVENTIVE MEDICINE

The common aim of preventive medicine and preventive surgery is so obvious, and yet it is only recently that the two have been mentioned in unison It was left to the work of a few company surgeons scattered over the country to bring out the indivisibility of the two A comprehensive plan for the supervision of the health of employees if adopted by all industries would be the greatest movement in this country for preventive medicine, and at the same time would be the greatest safety first movement that they could install Here again a temporizing plan will not yield the best results The medical staff must do its medical and sanitation work thoroughly and completely A mere inspection of employees must not replace a thorough medical examination because it takes less time and is immediately cheaper for the employer, work that should be done by the doctor must not be left to a nurse or trained lay assistant, and conditions in the employees that mean a premature retirement to the scrap-heap must not be tolerated because to correct them means an immediate loss of time Even temporizing methods, it is true, are better than the old methods, which did not consider in the least the health or life of the employees, but the company physician today must show that the benefits to the employer are in direct ratio to the thoroughness and completeness of the plan which he adopts for the supervision of the health of his employees

The thorough medical examination and reexamination of each individual is the chief aid in supervising the health of any group of people in intimate contact with each other, therefore, every employee in the active working force should be examined for the following purposes

1 To ascertain the condition of health of each employee and to give personal advice to those who need it, along the lines applicable to their cases

2 To discover diseases among the employees in the earliest stages and therefore while still curable Many diseases of which there was no knowledge are thus discovered, and the afflicted employee is advised as to methods to overcome the trouble or at least to prevent its advancement Many of these are referred to the family physician months before the patient would voluntarily seek his counsel

3 To find any one who has contracted a disease that might be communicated to a fellow employee Tuberculosis is the chief of these diseases Not only is the working force protected from contamination, but the disease is usually found in such an early stage that practically always a cure is possible

4 To discover the chronically diseased employee who is still able to work, and to recommend for him a position where he will be efficient and which will not hasten the course of his disease Thus, the man with organic heart disease would be an inefficient heavy trucker and such work would be of great danger to his life, whereas he would make a good straw-boss or light packer, positions which would enable him to control his disease

Likewise the medical examination of all applicants for work should be made, not for the purpose of choosing only the strongest, healthiest workers, as such a plan would be too great an injustice to our weaker fellow men, but for the following reasons

1 To prevent those with contagious diseases from mingling with our healthy employees

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[1] Mock H E Treatment of Hand Infections from an Economic Viewpoint Surg, Gynec and Obst 1915 21, 481

2 To prevent those with serious diseased conditions from going to work, for their own protection

3 To choose the proper type of work for those with some chronic disease which does not totally unfit them

Next in importance to the medical examination in supervising the health of the working force is the personal contact between the doctor and each employee, which enables him to advise concerning all matters of health and means of prevention which are suggested by their individual cases Thus, they are told when a diseased condition is present and how best to overcome it and when they should consult their family physician They are warned against wrong lines of treatment and the dangers of consulting quacks and advertising doctors, and the uselessness of taking 'patent medicines " The personality of the doctor is a most important factor in this personal contact with the employees He must be a friend, a teacher, and a kindly adviser at all times in order to gain their absolute confidence

Arguments have been raised against the medical examination of employees, chiefly by leaders of labor unions They say that unscrupulous employers could adopt such a system for the elimination of all but the very healthiest, and most efficient employees, or for the elimination of undesirable employees among the union help These objections are worthy of weighty consideration, if any employer adopts this plan from such an inhuman standpoint But if hand in hand with this medical work there is constructive work on the part of the employer to better the sanitary conditions of the working place, to assist the employee to regain his health, and so to regulate his work that it will not be detrimental to him, then these arguments are at once completely nullified

We have thoroughly examined employees during the last seven years [2] During the last three years we have also examined all applicants for work [3] For the years 1914 and 1915 we examined 15,151 old employees, 27 per cent of whom were found with definite diseased conditions, while a great number of very minor defects were found but not classified None of these employees were discharged, but they were advised as to the best methods to overcome or control their diseases, many were given vacations, or free hospital or sanatorium care, others were referred to their family physicians, or when investigation proved they could not afford to pay for special care, this was rendered to them free of charge by the medical staff Whenever the work of an employee was found to be detrimental to his health he was transferred to some other position as a rule his health improved and he became a more efficient employee at once In the matter of tuberculosis among our employees we have cared for 284 patients free of charge, a majority of whom were treated at sanatoriums

During the same period of 1914 and 1915, 13,764 applicants for work were examined and 19 9 per cent had definite diseased conditions, but only 3 4 per cent of these were rejected for employment In every case a rejection was made only when the applicant had some diseased condition which made work at the plant detrimental to him, or some contagious disease which might be spread to the active working force These figures and these facts are the strongest rebuttal we can possibly give to the arguments advanced against such a humane system of preventive medicine

But when such a system becomes more universal, great hardships will fall on the 3 to 5 per cent physically unfit employees who are unable to secure employment because they cannot pass the medical examinations Because of these hardships we are brought face to face with another problem which must always go hand in hand with any system of universal supervision of the health of employees, namely, either state or federal control of such a system and either state or federal health insurance laws, insurance against nonemployment, and old-age pensions But these same laws must be so carefully worked out that they will not react as a hardship to some other branch of society, and it therefore behooves the physician to devote much time and attention to this subject

The sanitation work, the ventilation, the study of temperature and of humidity, the disinfection of departments in which contagious cases have developed the disinfection of toilets and of cuspidors, and all matters dealing with the sanitary conditions of the working place make up a large portion of the work which must come under the direction of the specialist in industrial medicine and surgery

Likewise, the personal hygiene of each employee, his exercise and recreation, his housing conditions and the home environments, his personal habits and even his family history are matters which must be included in the scope of this work

The industrial visiting nurse, who also must have a vision and a social sense, is responsible for the investigation of many of these latter problems, and no plan of medical supervision of employees can be complete without her assistance Also the industrial dentist is coming more and more into this work as an aid in upbuilding the health efficiency of the employees A human laboratory for work and research in practically every branch of medical science is found in this field of industrial medicine and surgery And the company surgeon who takes advantage of it is destined not only to become a skilled, conscientious physician and surgeon, a sociologist, and an economist, but the influence of his work extends from the shop walls to the entire community

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Parinaud's Conjunctivitis—Surg G L Collins, U S P H S, in *Public Health Reports,* Dec 15 1916 says the health officer should keep in mind Parinaud s conjunctivitis in his search for trachoma Although he may regard granulations of adenoid tissue in the tarsal conjunctivae and retrotarsal folds as almost pathognomonic of trachoma, several other conditions, as Parinaud's conjunctivitis, may closely simulate trachoma Collins reports a case in a vigorous young woman, a gymnastic teacher, in whom the conjunctiva of each lid was greatly congested and at the nasal side of the upper lid were many granulations, and also in the upper retrotarsal fold, where they were crowded close together The granulations had a peculiar, yellowish semitranslucent appearance, and examination with a loupe showed minute white areas on the surface, with considerable mucoid secretion, but no pus A few granulations could also be noted on the epicanthal fold, and a minute subconjunctival hemorrhage on the bulbar conjunctiva The condition was unilateral and there was an enlarged and tender preauricular lymph gland The other eye was normal There were slight constitutional disturbances The symptoms were characteristic of Parinaud's conjunctivitis, and subsided in two or three weeks under simple treatment *The source of the infection could not be determined*

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[2] Mock H E Medical Work and Industrial Sanitation July 1910

[3] Mock H E An Efficient System of Medical Examination of *Employees Tr Nat Assn Study and Prev Tuberc May 1914, ibid* May 1916

MEDICAL SUPERVISION OF FACTORY EMPLOYEES

RESULT OF FIVE YEARS' EXPERIENCE[*]

W IRVING CLARK, Jr, MD
WORCESTER, MASS

The basis of this paper is work done in the Department of Health and Sanitation at the Norton Company and Norton Grinding Company, Worcester, Mass , from May, 1911, to May, 1916

The medical department in a factory has five functions, as follows

1 To make physical examinations of all prospective employees, and reexamine all defective employees
2 To treat accidents immediately after they occur—and subsequent treatments
3 Examining and advising cases of sickness
4 The control of sanitation throughout the works
5 Health publicity

I will take up these functions in order, and discuss each one briefly, giving our results

PHYSICAL EXAMINATIONS

The best time to make a physical examination is before the employee is hired This immediately eliminates any man who is totally unfit for the work to which he is assigned, and prevents contagious diseases becoming established in the shop Rejections should, however, be made only when they are absolutely necessary, as many men are perfectly capable of doing work in certain departments though unfitted for work elsewhere A physical examination should be made not only on a prospective employee but also on each employee who is transferred from one department to another for reasons just mentioned Periodic examinations, about once in six months, should be made on all men having defects of a nature which is serious enough to require inspection

Completeness of Examination—We believe that examinations cannot be made too complete When the department started, there were certain examinations which we did not consider necessary, such as examinations of the feet, and blood pressure We have since, however, changed our minds as a result of experience We now believe that the applicant should be completely stripped at some point during the examination and that as thorough examination should be made as in a general hospital on the admission of any medical case We consider blood pressure a distinct advantage as an indication of possible trouble in the kidneys This is especially valuable as a time saving device, being much quicker, and simpler than making a urinalysis of all cases Our rule is to do blood pressure on every man over 20, to do urinalysis on every person under 40 who has a systolic pressure of 150 or over, or a diastolic of 100 or over all men of over 40 years have a urinalysis regardless of their blood pressure

REJECTIONS[1]

We arbitrarily reject

1 All applicants over 45 years of age
2 All men having only one eye This because the work about grinding wheels is particularly hazardous to the eyes, even when goggles are worn
3 All men having vision reduced to ½ in both eyes
4 All cases of contagious disease, including, of course, tuberculosis
5 All cases having more than a second degree hernia (using the classification of the Conference Board of Physicians in Industrial Practice)
6 All cases of heart disease with disturbed compensation,
7 All cases of varicose ulcer
8 All cases of fourth and fifth degree flatfoot where the arches apparently give trouble
9 Marked hypertension

We have worked out this list of rejections by rule of thumb Each cause of rejection has been gone over most carefully and has been decided on only as a result of actual experience

Since Nov 1, 1915, we have made 100 rejections During the same period of time we have examined 2,618 applicants The causes of rejections are given in Table 1

TABLE 1—CAUSES FOR REJECTIONS

Causes	Number
Age (over 45 years)	20
Eye defects	35
Heart defects	2
Lung defects	4
Hernias	32
Venereal diseases	2
Nephritis and hypertension	3
General (numerous defects)	2
Total	100

There has been some question as to the selection of 45 years as a rejecting age Analyzing the physical examinations of the men rejected on account of age we find the gross defects given in Table 2 All of these defects are enough to disbar a man even though his age came under our limit

TABLE 2—DEFECTS IN APPLICANTS OVER 45

Defects	Number
Defects of eyes	9
Defects of ears	6
Defects of hearts	6
Hernias	5
Nephritis and hypertension	9
Pronounced flatfoot	2
Varicosities	1
Defects of lungs	1
Total number of defects	39

In other words, in twenty men over 45 years of age we found thirty-nine defects sufficient to disbar the applicant even if his age were under 45

DEFECTS FOUND IN EMPLOYEES THAT DO NOT BAR THEM FROM EMPLOYMENT

There are very few men who apply to the Norton Company for work who have no defects The average workman, though having numerous slight defects, is perfectly capable of doing almost any work in the factory There are, of course, some departments in which restrictions are higher than others — departments where there is considerable heat, heavy lifting, and more than the average amount of dust In these departments we try to get the most absolutely fit men that we can procure, provided they have the mental capacity for doing their work Examining the mental capacity of the prospective employee is a function of the employment department and does not come under our jurisdiction During the first three months of 1916 we examined 1,379 prospective employees Forty-three of these were rejected for reasons just given The last thousand consecutive cases showed the minor defects indicated in Table 3

The cases of tuberculosis existed among those who were rejected, and many of the persons with hernia were also rejected Each one of these prospective employees was told of his defects, and wherever possible instructions were given to show him as to how this defect might be remedied or be kept from troubling him It may be interesting to note that several patients with hernia have since our notification gone to the Worcester City Hospital, had curative operations and later become employees of the Norton Company Several other employees having marked defects of both eyes have procured glasses remedying these defects, and have been placed in departments where there is no danger of foreign bodies getting in the eyes

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[*] Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June 1916

[1] Rejections are made by employment department The term "rejections" here refers to medical risk as reported to employment department

TABLE 3—MINOR DEFECTS

Defects	Number
Defects of the eyes	100
Defects of the ears	23
Defects of the nose	148
Defects of the throat	35
Defects of the teeth	569
Defects of the neck	16
Defects of the heart	62
Defects of the lungs	17
Defects of the extremities	339
Defects of the inguinal region	106
Genito urinary defects	53
Defects of the spine	3
Defects of the skin	24
The more serious defects consisted of	
Defective vision in both eyes	56
Endocarditis, mitral insufficiency	41
Pulmonary tuberculosis, active	3
Flatfoot	311
Hernia (second degree or more)	50

Blood Pressure — Our experience with blood pressure has tended to confirm the general experience where large numbers of blood pressures were taken In the last thousand cases, dividing the men by decades we found the average as given in Table 4

TABLE 4—BLOOD PRESSURE

Age Years	Systolic	Diastolic	Pressure Pulse
From 20 to 30	129 5	88 5	50 3
From 30 to 40	135 1	89	47 2
From 40 to 45	140	91 6	48 2
From 45 to 50	158 8	92 8	66
From 50 to 60	167	100 8	72 5
From 60 to 65	178	100	77 5

I believe that the average systolic pressure is a trifle higher than normal on account of the excitement of the examination This fact has been brought out by Dr Roger I Lee, who came to this conclusion after examining the Harvard medical students The averages, however, are pretty much within normal limits It is rather interesting to note the increasing pressure pulse as age increases, remaining about the same for the first three decades and then rapidly climbing

To sum up the result of five years' experience with physical examination of employees in a factory of about 2,800

1 The average workman does not object to physical examination, and the majority of them are pleased to have such an examination made

(*a*) On account of the *information it gives them*

(*b*) Because it throws them in intimate contact with the doctor to whom they are going to apply afterward in case of sickness or accident

2 A physical examination cannot be too complete The most complete form of examination the average man requires takes ten minutes, provided a urinalysis is not done

3 Periodic examinations of markedly defective men tend to keep such employees in good condition and prevent an increase in their defects

4 As it is impossible to employ men who have no physical defects, a physical examination enables us to place men in departments where they will suffer the least risk and maintain the highest degree of physical efficiency

5 A fresh examination each time a man is transferred from one department to another prevents the possibility of a man being assigned to work for which he is not physically adapted

6 A periodic examination of the entire force once a year is not necessary because

(*a*) The examination is made each time a man is sent from one department to another

(*b*) All men having any sickness or accident apply to the hospital and are there examined if there is anything indicating the necessity for such an examination

7 The number of rejections, even with a rather highly restricted list of defects, is *very small, and is* no argument against but rather an argument for the advisability of physical examinations

HANDLING OF ACCIDENTS

All accidents *occurring* at the Norton Company and the Norton Grinding Company receive treatment in the department of health and sanitation This has been so thoroughly drilled into the foremen that we invariably see accidents within fifteen minutes of the time that they occur, except in cases of foreign bodies in the eye In these cases men sometimes do not realize that they have received a small foreign body in the eye and do not report to the hospital until the next day, when reaction is beginning The result of this prompt attention to all injuries has reduced our loss of time from accidents to the minimum during the five years the department has been in operation We have never had a case of sepsis I do not feel that I can make the statement that we have never had a case of infection, for in several cases there has been a single drop of pus, or a moderate exudation from a wound By sepsis I *mean pain, heat and redness accompanied by swelling* As we have been treating on an average of 241 accidents a month, it will be seen that the methods we use must be efficient Although these are undoubtedly those used by the majority of shop hospitals, I will give our routine

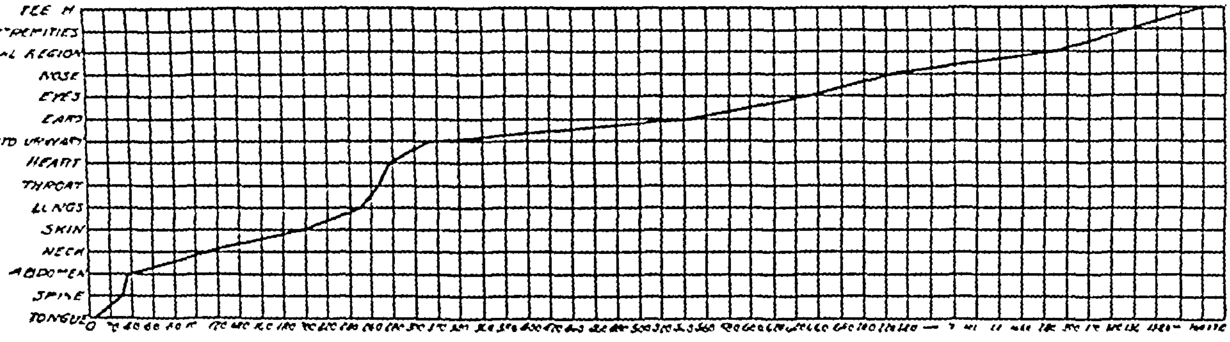
The wound is first thoroughly washed with commercial gasoline The gasoline is slushed on and used like water, being poured not only over the wound but into the wound itself, and a rather vigorous scrubbing is given the surrounding skin with sterile gauze Immediately after this, tincture of iodin, U S P, is poured into the wound and over the skin This is allowed to dry and a sterile gauze dressing is applied If for any reason we suspect the wound of being pretty dirty, a *second dose of iodin is poured on after the first is* applied My experience with this method of cleaning is not confined to the Norton Company, as I have used it in my private practice and active service in two large *hospitals As there has been some discussion as to* the efficiency of iodin, my own experience may be summed up as follows

Iodin to be 100 per cent efficient as an antiseptic must be used within thirty minutes of the receipt of a wound The efficiency decreases 25 per cent every fifteen minutes beyond this time After two hours it is almost useless

The immediate treatment of accidents undoubtedly reduces the time of disability If sepsis is eliminated, fractures promptly set, and backs strapped immediately *after strains, many patients are able to return* to work within a very short space of time in spite of apparently severe injuries

During the month of April at the Norton Company we treated 474 accidents, but one of which was severe enough to draw compensation That is, there was only one man injured severely enough to keep him out of work over fourteen days During the year from May 1 1915, to May 1, 1916, we treated 2,895

The facilities of the shop hospital for the after treatment of accidents has never been thoroughly brought out The peculiar situation of the shop hospital enables it to get a rapidity of cure in both accidents and sickness which cannot be reached by any other method There is no other method of treating ambulatory patients by which the patient can be brought to the doctor at a moment's notice and by which as many treatments as are required can be made during the day The two weaknesses of the general hospital outpatient department are first, that the patients frequently do not follow advice or fail to report and second that in cases requiring redressings these must be done by the patient at home The shop dispensary, however provides a place where the men may have dressings done in the shortest possible time by the most competent dressers, and by a follow-up system it can be definitely arranged that a patient will report at regular intervals through the day for such dressings



Number of defects and regions affected found by examination of 6 000 employees

I have been surprised at the speed with which infections clear up when treated in this way As I mentioned in my previous section, we have had no sepsis from any accident, but in many cases we have had men apply to the shop hospital with infections which they have incurred from neglected wounds occurring outside the works when home treatment has been used Furunculosis is very common, and we have, I regret to say, a number of cases of foreign body in the eye in which the patient has not realized that the foreign body was present until twenty-fours or more have elapsed Four-hour dressings of infections will, I believe, curtail the time of disability almost 50 per cent, and, moreover, the employee will keep on working because he knows he will get attention with little loss of time In foreign bodies of the eye, after the foreign body has been removed, we have the patient report every three hours to receive hot compresses and instillations of argyrol We seldom have an eye which is not cured completely in forty-eight hours, and in the majority of cases men lose no time while the treatment is being carried on The same applies to some medical conditions, particularly tonsillitis and other forms of sore throat In these cases we paint the throat two or three times a day with iodin and glycerin, providing a hot gargle for the patient every three hours

To sum up, our experience with accidents in the last five years has convinced us that 1 A very little inducement will bring every accident, no matter how slight, to the shop hospital for treatment 2 The shop hospital is the place to treat accidents of all kinds, and first aid should not be done in the shop unless it is absolutely necessary to save life 3 Gasoline followed by tincture of iodin is the best antiseptic, and if used within fifteen minutes is practically sure of producing a clean wound 4 Safety engineering has reduced the number of serious accidents to the absolute minimum, but is unable to reduce the very slight minor cuts and smaller injuries, the latter depending on the personal element of the employee

TREATMENT OF SICKNESS

Our treatment of sickness is prophylactic, not curative When a man is sick enough to need a doctor we send him to his family physician or to the hospital If he has no family physician we give him a list of doctors from which to choose Our idea of handling sickness is to make a correct diagnosis and to treat the minor ailments which if not attended to promptly may lead to more serious conditions Such cases are sore throat, coryza, beginning bronchitis, constipation, diarrhea muscular pains and similar slight ailments For such treatment we have a small supply of simple drugs which in the majority of cases is efficient If we have to treat a man more than twice for a condition requiring medication, we immediately advise him to go to an outside doctor Any man who is really sick we endeavor to diagnose, but do not attempt to treat him ourselves When a man has a temperature of 100 4 he is sent home and not allowed to return to work until he has presented himself to the hospital in perfect condition I wish it to be distinctly understood that I do not believe the function of treating sickness belongs to the average shop hospital, but I do believe that many diseases may be prevented by immediate simple treatment, by observation and advice As I have before said, I like to consider the medical function of the shop hospital as a diagnostic clearing house

During the past year we have treated 3,474 cases and have, I believe, materially reduced the disability from sickness, by simple preventive measures

To sum up

1 Our treatment of sickness is preventive, not curative

2 Our effort in serious sickness is to diagnose and see that the man gets immediate attention from his family physician or from a specialist where one is indicated

3. We believe that a man with a temperature of 100.4 should not be allowed to work and should not be allowed to return to work until his temperature has reached normal and all signs of the disease have disappeared.

4. By arranging that all men feeling sick must come to the shop hospital, we have prevented a large amount of sickness and have isolated a number of contagious diseases in the last five years, besides in many cases saving life through early diagnosis in such cases as acute appendicitis.

6. Such treatment will materially reduce the time lost by employees throughout the shop.

We believe the follow-up system by which the absent employee is visited by a member of the employment department when reported from work is of the greatest value to the medical department. In this way we can be sure that (*a*) no man has received an accident and failed to have it cared for at the medical department; (*b*) an employee has not a contagious disease which is unknown to the medical department; (*c*) an employee is sick and has not received adequate medical care on account of his financial condition; (*d*) a patient who has been coming regularly to the hospital is not absent from work because of some trouble arising from the injury.

The follow-up system, therefore, has a double function. First, to hunt down the men who are absent with the idea of getting them to return to work as soon as possible, and second, to investigate any patients absent on account of sickness or accident, and to report the same in detail to the medical department, so that the medical department may take further action.

The control of sanitation should rest entirely with the medical department.

At the Norton Company the entire cleaning of toilets, wash-rooms, as well as the removal of rubbish, garbage and paper is in the hands of the department of health and sanitation. In this way the work is centralized and can be systematically arranged so that each man of the force has a definite round of work to perform. Although the company has been expanding greatly in the last two years, and as a result the toilets and wash-rooms have been badly crowded, thanks to careful, systematic work there has been no complaint whatever. One of the things with which we have had most difficulty is to find a good type of cuspidor. The one which we now use is made of stone, is almost unbreakable, and cannot be upset. It is filled with sand and chlorinated lime, and has proved absolutely satisfactory.

HEALTH PUBLICITY

Much educational work can be done throughout the shop by means of leaflets written in simple, clear language on the subject of hygiene and general medicine. We have been publishing such leaflets monthly, enclosing them in pay envelopes, and their reception has been most gratifying. The best bulletins of this type are probably those recently approved by the Conference Board of Physicians in Industrial Practice.

37 Pearl Street.

Feeblemindedness.—The term feebleminded is used generically to include all degrees of mental defect due to arrested or imperfect mental development, as a result of which the person so afflicted is incapable of competing on equal terms with his normal fellows or managing himself or his affairs with ordinary prudence.—American Association for Study of the Feebleminded.

THE PREVENTION OF CHRONIC MIDDLE EAR SUPPURATION*

GEORGE W. MACKENZIE, M.D.

PHILADELPHIA

When we consider the frequency with which it occurs, the resistance it offers to treatment, the damage it does to hearing, and the risk it incurs to the life of the individual, the subject of chronic middle ear suppuration becomes one of importance, and the question of how best to prevent it deserves the time and attention of the section that the chairman has seen fit to assign to it.

The prevention of disease is the highest aim of the medical profession. To accomplish successfully this aim we must possess first a knowledge of the disease that we hope to prevent. A comprehensive knowledge of any disease implies a knowledge of the pathology and diagnosis. This applies especially to the subject of chronic middle ear suppuration, for the reason that it is a disease capable of manifesting itself in a variety of ways and liable to many complications. It is not only necessary to recognize the disease when present, but we must actually anticipate it when certain factors are favorable to the development of the disease. Thus we see that a knowledge of the etiology is even more important than a knowledge of the pathology and diagnosis, in that it goes a step farther.

These requirements, a knowledge of the etiology, pathology, and diagnosis, are necessary if we hope to prevent chronic middle ear suppuration.

A knowledge of the diagnosis is essential, for without it we can know nothing about the condition which we are attempting to prevent, nor are we able to say that a particular case is chronic or acute. For instance, when a patient presents himself for treatment with the history of a running ear lasting over a prolonged period, the diagnosis of chronic middle ear suppuration may be inferred, but should not be concluded, for the evidence is insufficient. The diagnosis must include a knowledge of every feature of the case ascertainable from all available sources of information, including the history, the functional hearing and static tests, the otoscopic examination, the rhinoscopic examination, the skiagraphic examination, the examination of the secretions from the middle ear for consistency, color, odor, etc., the microscopic examination of the washings from the ear for cholesterin or other crystals, for micro-organisms, including the smear and cultural methods of examination in order to ascertain the nature of the infecting organisms, blood and urinary examinations, in many cases a neurologic examination, and indeed occasionally a general physical examination of the entire body. There is no disease that requires a more exhaustive examination. By such complete methods only are we able to determine, with some degree of certainty, the pathologic conditions that exist in the middle ear, eustachian tube, attic antrum region and mastoid cells, whether the suppuration is an acute or chronic process, whether it is tending toward spontaneous recovery or extension, whether the extension is toward the inner ear or intracranial structures, whether cholesteatoma is present or not, whether the suppuration in the middle ear is producing a detrimental effect on the patient's general condition of health or vice versa. Besides, from the knowledge obtained by a thorough examination combined with experience gained in similar cases, some idea may be formed as to the prognosis with and without treatment and the probable effects of selected treatment. I use the words "selected treatment" advisedly, for the reason that treatment cannot be routine in a disease in which the conditions are so variable as they are in chronic middle ear suppuration.

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

We have referred to the importance of a comprehensive diagnosis and how the diagnosis depends in a large measure on our knowledge of the pathology, but only in a direct, physical-mathematical sort of way, as determined by laboratory methods. On the other hand, the indirect (predisposing) symptomatic, and, we might add the physiologic factors as determined by clinical methods, are not included in the study of pathology. It is these latter features that play an important role in the individual susceptibility and variability in the manifestations and course of the disease so that it would hardly be fair to dismiss the subject of etiology with a mere reference to the pathology.

Since chronic middle ear suppuration is the sequela of acute middle ear suppuration, the prevention of the chronic form is possible only when we are able to arrest the suppurative process while it is still in the acute form. Just how long an ear may discharge before we may class the condition as a chronic middle ear suppuration is a question difficult to answer. Probably no two authorities would agree. It was taught in the Politzer clinic that an ear that discharged for more than two years might be classed as a chronic condition and should be operated on radically, while a discharge lasting for a shorter time was classed as acute and should be operated on after the simple method. Politzer then cited a limited number of exceptions to this rule.

The question of duration is a relatively important one when considered along with other factors, more especially the influence of treatment. For instance, if an ear continues to discharge for more than six months in spite of carefully conducted conservative treatment covering a period of two months or more the writer would be inclined to consider the case chronic, but not necessarily one requiring radical operation.

The treatment of acute middle ear suppuration depends on many factors, local or distant, recent or remote, the presence or absence of complications, the susceptibility of the patient to a particular infection, and the vitality of the patient, measured by his general resistance to all diseases and his power of recuperation.

Local factors that tend to prolong a case of acute middle ear suppuration may exist in the form of adhesive bands in the middle ear spaces, left there by one or more previous attacks of acute secretory catarrh, narrowing of the eustachian tube anywhere along its course, the result of organized exudate following acute secretory catarrh. Anything which tends to obstruct the free drainage of pus from the middle ear spaces becomes a factor of importance in prolonging an acute middle ear suppuration. The normal route for the escape of middle ear discharge is down the eustachian tube, which is at the same time the most favorable. The reason why discharge finds its way out through a perforation in the drum membrane in the case of acute suppuration of the middle ear is because the normal route down the tube is temporarily closed. It follows, therefore, that when the normal route continues closed beyond a certain period, the suppuration tends to last proportionately long. Drainage down the eustachian tube may be obstructed by inflammatory edema of the mucous membrane, but this is usually transient. The more important obstructions are the organic, and the most frequent of these is to be found in the narrowing that follows the organization of exudate from acute tubal catarrh. The loss of the cilia with metaplasia of the epithelium, in spite of patulousness of the tube, may act as a relative obstruction in that drainage is not favored, as is the case when the epithelium is in normal condition. Very large adenoids may obstruct the orifice of the tube and interfere with normal drainage. A frequent location for obstruction is to be found at the upper end of the tube, or, more properly speaking, in the pretympanum. In this location membranous diaphragms are sometimes formed. The opening in this diaphragm may vary in size at different times in the same individual.

Obstruction in the middle ear cavity may be found in the form of so-called adhesive bands, which tend by their presence to close off partially dead spaces. In one case it may be the attic region, in another the antrum region, and less frequently the hypotympanum. These bands may exist from birth, due to incomplete absorption of the connective tissue that existed there in the embryonal state. More often it is due to the deposition and subsequent organization of exudate following a catarrhal condition. It is this same process that leads eventually to the so-called chronic adhesive process of the middle ear. When the adhesive bands tend to close off the antrum the possibility of complicating mastoiditis is increased. The way to the antrum, instead of being closed off by material bands, may be concentrically narrowed by the organization of exudate from similar causes. Temporary closure, partial or complete, of this region may result from inflammatory swelling of the mucous membrane. The perforation in the tympanic membrane may be too small or unfavorably located to permit of proper drainage, in which case it would be well to enlarge it. My impression is that far more attention is paid to the size of the perforation in the membrane than to the condition of the tube, when in fact obstruction in the tube is by far the more important factor of the two when both conditions are present. The first place to look for imperfect drainage is in the tube, correct it and the size of the perforation often becomes a factor of secondary importance. On the other hand, I do not wish to criticize any one for giving attention to the size of the perforation, but rather for neglect of the tube. Anything that obstructs the free flow of pus from any part of a suppurating middle ear tends to prevent spontaneous recovery and therefore to chronicity. The exact nature of the obstruction should be sought and corrected by the simplest known method. If the obstruction is due to necrotic areas in the bone, with granulations, or to cholesteatoma, or to large polyps, the condition is already chronic, and a discussion of them would be foreign to our present subject.

When the obstruction can be located and its nature determined, the logical thing to do is to remove it, if possible, by the simplest means at our disposal. When these fail, as they do at times, more radical methods must be adopted, for neglect of drainage will surely result in chronicity if not complications. The question of correcting an obstruction narrows itself down to the diagnostic judgment of the otologist in locating it and his manipulative skill in handling it when it is located One thing that I have observed and wish to emphasize is the frequency with which local inflammatory swellings acting as obstructions clear up promptly after a simple mastoid operation In other words, a simple mastoid operation will side-step an otherwise irremovable barrier to drainage Nor is this to be wondered at when we consider that an organic obstruction located between the middle ear cavity and the antrum will drain the posterior spaces better by a posterior opening, while the anterior spaces will drain better anteriorly

A mastoid operation is not to be urged except when other more simple methods have been tried and have failed On the other hand, the operation should not be postponed in the presence of the indications for operation By temporizing we may fail to clear up the case by the simple operation and thus necessitate a more radical operation later

Among the neighboring and more distant conditions that may tend toward prolonging an acute middle ear suppuration may be mentioned adenoids, when extremely large, by blocking the pharyngeal end of the eustachian tube This has been referred to previously when discussing the question of drainage Aside from the fact that enlarged adenoids may act mechanically to obstruct drainage, they may menace the health of the ear in other ways For instance, the presence of adenoids increases the susceptibility of the patient to infections, and these again tend to increase the size, for the time being, of the already enlarged adenoids By this means it not infrequently happens that the patient with an acute middle ear suppuration experiences aggravations and added infections from repeated colds, furthermore, the original infection in the nose and throat is prolonged because of their presence When such conditions prevail it is important to remove the adenoids at a time best suited to the circumstances

Enlarged and chronically diseased tonsils act in a similar manner, but less directly than do enlarged adenoids Chronically enlarged tonsils are more susceptible to acute infection than normal tonsils and there is no telling just when a flare-up is going to occur, so that in a case of acute middle ear suppuration that does not tend toward recovery within a reasonable time it is a safe plan to remove the enlarged tonsils along with the adenoids Success does not always crown our efforts for the reason that there may be other factors tending to make the case chronic

Nasal obstruction may seem to some a far-fetched cause of chronicity in middle ear suppuration Nevertheless, experience teaches us that the correction of nasal obstructions act beneficially in all pathologic conditions of the middle ear Different theories have been advanced to account for it, which I will not take your time to discuss at present The importance of nasal obstruction in its bearing on suppurative middle ear conditions, although previously recognized by the writer, was further emphasized about a year ago, when, after failing to clear up a case of subacute middle ear suppuration within a reasonable time by the usual conservative methods, the condition promptly cleared up after a submucous resection of the septum performed by another physician to whom the patient had gone Embarrassing as it is to confess it, the case is cited because of the lesson it teaches

A common cause for delayed recovery in acute middle ear suppuration is to be found in the so-called chronic infections, tuberculosis and syphilis, especially the former A large percentage of the persistent cases of acute suppuration in infancy are tuberculous, when we frequently find the ear conditions associated with enlarged cervical lymphatics In some of these cases the ear condition had its origin in a tuberculous infection in the middle ear, perhaps masked by the mixed infection that usually follows the breaking down of tubercles In other cases the primary condition in the ear was due to some other infection, the process never becoming tuberculous, however, the tuberculosis elsewhere in the body acts detrimentally to the health in general and prevents prompt healing of the suppuration in the ear Early evidence of caries suggests a tuberculous process in the middle ear

In either event, care of the ear alone will generally fail to bring about a cure The case should be treated as one of tuberculosis, along general lines, as in the case of tuberculosis in other parts As is well known, the operative treatment of tuberculous ear conditions is prone to be followed by tuberculous meningitis, especially where the patient's general health is ignored

Concerning syphilis of the middle ear much less is known and fortunately the condition is rare, but the same remarks apply in a general way to this process as to tuberculosis Diabetes is prone to delay healing in acute middle ear suppuration if it does not actually contribute largely to its etiology It should be suspected in all patients over 40 years of age when there is delayed recovery of suppurative processes generally, including those in the ear Sequestration of the labyrinth as a whole or in part calls for a careful urinary examination for sugar and acetone To treat successfully the ear condition attention must be given primarily to the diabetes

It is needless to cite all the conditions that may contribute to chronicity in acute middle ear suppuration, suffice it to say that any disease of the kidneys, heart, lungs, gastro-intestinal tract or elsewhere which tends to depreciate the patient's health and vitality tends also to prolong acute middle ear suppuration and make it chronic, while any form of treatment directed toward the correction of these organic conditions contributes to the healing of the middle ear suppuration Lack of vitality may exist from known causes, including some of those already mentioned, besides lack of proper hygiene, improper clothing, insufficient nourishment, etc , furthermore, lack of vitality may result from unknown causes often inherited, general weakness due to lack of care of the mother, alcoholism in the parents, etc The child need not be puny as an evidence of lack of vitality, for on the contrary it is sometimes fat, however, a flabby fat Lack of vitality is also found in the feebly old

Lack of vitality manifests itself in two ways First, by the lack of reaction to disease, the case showing asthenic from the start There is but slight general reaction, shown by the relative lack of fever and scarcity of symptoms There is but slight local reaction, the swelling of the parts is but moderate and the pain insignificant, while the patient's wants are few Nevertheless he looks sick and is sick The tendency is for the infection to spread rapidly, it does not become circumscribed by the normal process of lymphocytosis

Another manifestation of lack of vitality is evidenced by the manner, or rather lack of manner, in which the patient responds to treatment Remedies aimed at stimulating the patient generally or the parts locally fail to do so, but more often have the opposite effect, when the prognosis becomes bad indeed

Complications by way of extension of the suppurative process to neighboring parts may be a cause for delayed recovery in acute middle ear suppuration The most frequent extension is to the mastoid cells, with resulting mastoid abscess, less frequently to the internal ear, the lateral sinus, the dura and other membranes of the brain and the brain itself It would take entirely too much time to discuss these various conditions in a limited paper Nevertheless, they are important factors that deserve careful consideration and study, and should be borne in mind, if not anticipated, in all cases of delayed recovery This calls for a searching examination, suggested in the earlier part of the paper, for by it alone are we enabled to approximate an exact diagnosis in the full sense of the term

It may be well to mention the fact that none of the complications arise suddenly, even in those cases in which they appear to, for on the contrary we generally find prodromal symptoms of longer or shorter duration These prodromal symptoms are generally due to a serous form of inflammation due to the action of bacterial toxins that filter through the bony partition that separates the infected area from that which is threatened For the alert diagnostician, therefore, sufficient time is generally allowed to intercept the more dangerous suppurative form of inflammation

Susceptibility to a particular organism, lack of immunity or failure to generate proper immune bodies in sufficient quantities may be a cause of chronic middle ear suppuration Theoretically the vaccine treatment should be ideal for this condition In behalf of this treatment a great deal was promised a few years ago I almost hesitate to confess what little service the treatment has been to me I tried it early and carefully and over a long period, and was encouraged at first, thinking I had at last found a panacea, but later disappointment came and the disappointments were repeated Autogenous vaccines were used when the time and circumstances permitted, when they were not used the stock preparations were When the results were apparently most brilliant with the vaccines the conditions were favorable and the same results were duplicated in other cases in which vaccines had not been used In the most trying cases the vaccines failed me as did other methods There is a field for vaccines, but it is a limited one I have not given up their use, in spite of my many failures to obtain results with them If the preparation of the vaccines is all right, failure to obtain results would seem to show that we are not on the right track, and the cause of the chronicity must be sought in some other factors previously referred to

My effort has been merely to outline some of the causes of delayed recovery in acute middle ear suppuration, the prompt cure of which would mean the prevention of chronic middle ear suppuration

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The Heritage of the Profession —We are a curious mixture of heredity and environment—a curious blend of optimism and pessimism Our heritage is a glorious one for we present an unbroken line of professional workers with one ideal which was old before the Christian era From the time Hippocrates taught his disciples at Cos to the present, the one great idea the one great controlling thought, has been to find the truth and having found it, to use it for the benefit of mankind The truth sought for has never been sought that it may be put to the base use of man s destruction —J M Putnam, Address before Buffalo Academy of Medicine

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NONOPERATIVE TREATMENT OF OTITIS MEDIA *

NORVAL H PIERCE, M D

CHICAGO

Chronic suppurative otitis media is rather easily cured in a large number of cases if proper methods are adopted, but it is exceedingly difficult to obtain men with sufficient self-abnegation, one might say, to carry them out I refer here especially to our public clinics, in which we find that assistants do not give the attention to nonoperative treatment of chronic suppurative otitis media that they should Such work is regarded as an uninteresting grind, hence the tendency is all toward hastening these patients to the operating table

The proper treatment depends on the location of the area of the middle ear involved, that is, whether the disease is more or less located in the tube, the cavum or the mastoid portion of the middle ear, on the stratum that is involved, that is, whether it is relatively superficial, the epithelial structures being most affected, or the tissue under the epithelium, or whether it is the periosteal layer and bone You know the mucoperiosteum, as its name would indicate, serves two purposes, as a mucous membrane and as a periosteum, the bone beneath deriving its nutrition immediately from the mucoperiosteum The treatment also depends on the character of the *pathologic process*, that is, whether it is merely a pus-producing microorganism, being a streptococcus, staphylococcus, or one of the various forms of diplococci, whether it occurs as the result of diphtheria or scarlet fever, or of tuberculosis or syphilis

Tubal disease is very rarely purulent Large quantities are blown out with the catheter Purulency in a discharge from the ear means, as a rule, disease of the bone When the discharge *from the tube* is purulent, it indicates involvement of the tubal cells, a series quite separate from the mastoid system, and calls for operative intervention, *obviously, not* the so-called radical operation, but one *outside the scope* of this paper to describe The *mucus or purulent* mucus comes invariably from the tissues above the periosteal layer of the mucoperiosteum The mucus from the *cavum is exceedingly* scant, the moisture here being secreted by *the surface* epithelium, there is little or no glandular tissue *in* the cavum In the tube these structures are quite evident, being more abundant at the pharyngeal opening and decreasing as the isthmus is approached, where it is absent, and again gradually increasing toward the caval opening The perforations in the tympanic membrane from tubal disease are situated in the anterior portion of the pars tensa practically always They are usually large in chronic cases, but may be small They are central and never *marginal* in uncomplicated tubal disease, that is, an area of tympanic membrane intervenes between the perforation and the annulus In centrifuging this discharge we find no evidence of bone cells or bone chips This discharge may be quite abundant, may be quite fluid, is usually stringy and tenacious, but not purulent This discharge may continue a long time, for years, more or less, with exacerbations occasionally, diminishing to a point at which the patient scarcely notices the discharge, or completely ceasing for a time But it is chronic and continuous in many cases *The treat-*

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ment should be directed to the tube These are the cases that depend for their continuance on pathologic conditions outside of the aural structures per se This has been sufficiently brought out in preceding papers Besides removing the associated pathologic conditions in the nose and postnasal space, we should get rid of the hyperplastic tissue in the tube itself This may be done by application to the tube by means of the eustachian catheter, applicator, Weber-Liel catheter or syringe Schwartze long ago recommended that in such cases the tube be syringed out This can be done through a catheter, the irrigating fluid coming through the perforations of the tympanic membrane We should, therefore, be careful in these cases to have a large perforation, a perforation of proper size made by the condition or artificially by surgical enlargement The irrigating fluid we use for this purpose should be nonirritating A normal salt solution is ideal Nitrate of silver may be applied in these cases A small wire, preferably not silver wire, one strand being wound about another, makes a very cheap and efficacious applicator for this purpose A small piece of cotton is wound on the end and this is immersed in the nitrate of silver solution, and carried to the cavum In such operations the hard rubber catheter should be employed One should begin with a low percentage, 2 5, and increase, according to the resistance of the patient, to 10 per cent This should be carried through the isthmus to the caval opening of the tube We may apply the medicament to the tube with a syringe fitted into the catheter, but this method is less effective

In a majority of cases, when uncomplicated by diabetes, syphilis, etc, or when the tubal cells are not involved, this will bring such a discharge to a close In case, however, these patients do not recover, then the question comes up whether ossiculectomy is permissible, or whether we should take away a large portion of the tympanic membrane, establish a permanent opening by way of the external auditory canal, and by some method endeavor to seal up the eustachian tube and destroy the tubal cells

Now we come to inflammations of the cavum For descriptive purposes anatomists have divided the middle ear into the tube, the cavum and the mastoid cells As regards the pathology, these divisions do not hold They are artificial, in other words The middle ear begins with the pharyngeal opening of the eustachian tube and ends with the most remote pneumatic space of the mastoid, all being covered by a membrane of unbroken continuity We may have these so-called superficial inflammations that do not involve the bone, but the covering of the bone, extending from the tube to the cavum, and even the mastoid cells themselves It is a rarity to find either an acute or chronic inflammation limiting itself to any one division of the middle ear It is in the epitympanic space that we behold the anatomic conditions which tend to perpetuate even simple inflammation, because of insufficient drainage conditions I refer to those innumerable little pockets in the epitympanic space formed by the various ligaments that attach the malleus and incus to the surroundings, all covered with mucosa For a long time undrained, infectious material causes the mucosa to take on the usual inflammatory changes, causing a discharge which resembles that from pure tubal disease In a large majority of these cases the perforations will be anterior or posterior to the manubrium, and in the pars tensa

How are we to get at these little pockets? The best way is by irrigation through the eustachian tube and through the opening in the pars tensa This can be done by means of the epitympanic cannula It can be done through the tube itself by the Weber-Liel catheter, a catheter made of woven silk, which is introduced through the eustachian catheter to the cavum, or to the isthmus, and the fluid forced in through the epitympanic space by means of a syringe I do not hesitate to do this I believe in these chronic cases the danger of forcing infectious material into the antrum is more or less, preferably more, fallacious

Here comes in the use of the boric acid and the dry gauze drain There was a war preceding the present war in Europe by some years, between the various camps in Germany, Munich and Halle being the respective citadels, and it became almost as deadly as the present conflict, one camp standing for the irrigation of the ear and battling against the dry method, the other upholding the standard of the dry and bitterly militating against the wet method Now we all know that irrigation has its place It has its place to remove debris, to remove secretions But we should be very careful how much we irrigate the ears in chronic otitis media suppurativa There is no doubt that there are cases in which injudicious irrigation only perpetuates the discharge, but when we find that this is true, all we have to do it to use either a boric acid pack or a dry gauze drain The dry gauze drain that I prefer is one made from xeroform gauze, one-half inch wide, packed against the perforation in the tympanic membrane, not pressing it, but in contact with it, and changed as often as this drain becomes moist Or the boric acid will produce results in cases in which the dry gauze drain will not, and this is especially so in cases in which the promontory of the cavum is largely exposed, in which perhaps the malleus handle has become necrotic and disappeared, and in which the mucoperiosteum of the promontory is granular In these cases, if the dry gauze drain does not produce dryness or a decrease of secretions, the head is bent to one side and the whole external auditory canal is tamped with boracic acid This can be done, of course, only in cases in which the perforation in the tympanic membrane is large

Granulation tissue in the cavum, projecting as a polyp through a perforation above or below the short process of the malleus or covering the promontory as a sodden mass, means that profound changes in the circulation of the mucoperiosteum have taken place, and that therefore the bone beneath has become more or less involved This should be removed by snare or cautery (chromic acid, iron perchlorid, trichloracetic acid), with proper precautions Alcohol, with or without salicylic acid or boric acid, is a most useful application in this class of cases, as well as in small cholesteatomas of Prussak's space

Now we come to the cases in which the mastoid is involved, and these are cases in which the bone must be taken into consideration Here we may have perforations in the pars tensa, or most frequently in Shrapnell's membrane, these are usually situated at the periphery of the tympanic membrane These are usually cases of cholesteatoma produced by the overgrowing of the epithelium from the auditory canal into the epitympanic space, which causes pressure, and this pressure causes destruction of the bone within the antrum and mastoid This is not a condition which necessarily demands operation It is our duty to ascertain the extent of the disease I have cured numerous cases of this kind, when small and not too old, by the use of the epitympanic cannula and alcohol This epitympanic cannula is inserted through the perforation of the epitympanic space, or in case there is a fistula, posterior or anterior, and that is washed out, and frequently I wash out large masses of cholesteatoma After this I either pack with boracic acid or dry gauze

How do we know the mastoid is involved? By the history of the patient, as to whether there have been symptoms of spontaneous pain or tenderness on pressure, of swelling back of the mastoid at the beginning of the otitis media, as to whether the discharge produced is purulent, as to whether the perforation is situated in the pars tensa or pars flaccida, by the skiagraph, by the recovery of cholesteatomatous tissue from the washings, by the presence of cholesterin crystals and bone plaques in the centrifugalized pus, by the presence of symptoms indicating meningeal or labyrinthine irritation Certain groupings of these symptoms indicate radical operative procedures, but this subject cannot be even touched on in this paper

I have just two more points first, as to suction That has been tried a great deal Personally, I have seen very little good come from it I do not believe, however, that it does harm or that it may be dangerous It should certainly be tried if any one would like to try it In one sphere it is especially useful, and that is in diagnosis as to the region whence comes the pus

Second, as to vaccines I have seen only one kind of case of chronic suppurative inflammation in the middle ear benefited by vaccines, and that was a case in which the epitympanic space was involved, characterized by a considerable discharge of mucus, and here we have found in two cases a pure culture, in one the staphylococcus, and in the other staphylococcus greatly in excess of the other kinds of bacteria Here the autogenous vaccine produced a cure in a little over two weeks in one patient who had been under treatment for as many months

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THE END-RESULTS OF TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA *

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The end-results of treatment naturally fall under two heads, namely, the nonoperative and the operative

In nonoperative cases the results depend much on the correctness of the diagnosis In any case that is, in fact, a nonoperative one, the end-result should always be a cure of the discharge and improvement of function, provided the cause of the aural discharge is not a constitutional one, such as syphilis or tuberculosis, and there is no labyrinthic involvement present Many cases that are properly classified as nonoperative in so far as concerns the ear are, nevertheless, operative in the sense that the environment of the ear is bad, so bad indeed that operative measures for the improvement of nasal breathing are necessary In such as these the end-results of treatment depend much on surgical means for the removal of infectious foci of the nose, nasopharynx or pharynx

We may, therefore, dismiss the nonsurgical aural cases with the statement that when assured that any given one is actually in the nonsurgical class, cure should in the vast majority of cases be expected, and the hearing power should usually be improved

The end-results of the surgical treatment of chronic suppurative otitis media depend on many things

1 The age of the patient This, in my own experience, has had little to do with the outcome of surgical treatment, further than that the radical measures necessary to cure are somewhat more difficult in children than in adults, and the after-treatment usually cannot be so thorough with crying children as with older patients However, in cases of children in whom the aural disease or its treatment is not modified in any way by the conditions I shall shortly mention, I have found the end-results satisfactory in a high percentage of cases

2 The condition of the nose, nasopharynx and pharynx The end-results of surgical measures for the cure of chronic otorrhea are often failures to a great extent if the diseased environment of the ear is not corrected This fact is now generally accepted, I believe, by aural surgeons, for if, as believed, the nasal and nasopharyngeal diseases were the chief predisposing factor in the causation of the chronic aural affection, then cure of the aural disease must be unlikely so long as the diseased environment remains Clinical experience in the treatment of chronic running ears bears out entirely the correctness of this belief

3 The nature and violence of the original aural infection These probably more than any other factors determine the end-results of surgical treatment If the bacteria of invasion were violent of action, as is usually the case in the infectious diseases of childhood or in the severe epidemics of grip and as a result serious invasion of the osseous walls of the drum cavity or of the deeper portions of the adjacent mastoid or petrous parts of the temporal bone occurred, the nature of the final outcome may be in doubt, however, the end-result of surgical treatment will even then usually be a cure, but may possibly be only a partial cure and sometimes is a failure While of course the proportion of cures, partial cures and failures depends much on the conditions present in the patient, as set forth in the points of argument to follow, much depends on the skill of the surgeon at the time of the operation, and on his energy in following the case personally a sufficiently long time afterward

4 The presence of complications at the time surgical measures are attempted The end-results of surgical treatment of chronic aural affections, when complicated by extension of the infective processes to the labyrinth, meninges or lateral sinus, furnish a brilliant example of the progress and efficiency of aural surgery The end-result, of course, here depends very much on early diagnosis, since success in this class of surgery goes hand in hand with prompt diagnosis, which alone gives the surgeon his essential opportunity Increased knowledge on the part of the internist concerning the possibilities that may arise from a chronic aural discharge and the greatly increased facilities to early diagnosis of aural complications now at hand, when taken together with a better surgical knowledge on the part of the aurist than ever before existed, furnish the reason for the many brilliant cures that have been reported as a result of surgical measures for the relief

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of brain abscess and sinus thrombosis About 50 per cent of these patients are now cured, whereas formerly 1 per cent was regarded high The present percentage of cure will no doubt be raised when internists and others have greater solicitude for those patients who have chronic aural discharge Earlier diagnosis in a larger percentage of cases will then be made, and of course earlier operative opportunities will be presented

The weakest spot in surgical otology today is the end-result of meningitis, especially leptomeningitis, as a complication of suppurative otitis media, since practically all patients now die, whether operated on or not Some encouragement has been offered from operative methods and subdural drainage, especially by Crockett, who recently reported three cases of cure from this plan, but the majority of operators have not reported anything but failure The chief end-result at present, in so far as concerns meningitis, is prevention, and there can be no doubt but that all who operate for chronic suppurative otitis media according to the most approved technic frequently prevent this dangerous intracranial complication, hence it is evident that the end-results from treatment, especially the curative end-results, often depend on

5 The period of the disease in which the operative attempt to cure is made Largely, no doubt due to the facts that a chronic aural discharge is not often painful, and to the tradition that it may be helpful to the system, operative measures are not considered by the patient until danger signals have arisen which are clearly evident to the experienced aurist The nature of the end-results are often reversed by the delay, for results prove that radical mastoid surgery performed for the cure of a running ear, if done at a selected time, and before there is present any extension to some vital center, is among the safest surgical procedures, and also that when performed by those especially trained and experienced in this class of surgery, the cure of this discharge should be expected in the vast majority of such cases The end-results at present are therefore, not so good as they should be The fault lies with both the physician and patient The physician who should know the dangers resulting from delay should reeducate the public concerning the actual dangers due to prolonged aural suppuration Considerable knowledge about discharging ears existed centuries before disease of the appendix was known, yet today both physician and laity know vastly more of the diseases and dangers lurking about the appendix than about the equally common and equally dangerous chronic suppuration of the middle ear The only conclusion one can draw is that the abdominal surgeon has gone to greater pains to enlighten the public than has the otologist

6 The physical condition of the patient No argument is needed to prove that the end-result from the surgical treatment of chronic otorrhea depends much on the physical condition of the patient Conditions of ill health may be due to bad environment, overwork, undernourishment, chronic malaria, septic states due to the ear itself, or other foci of infection Most of these and others can usually be sufficiently overcome, in preliminary treatment, to insure a satisfactory end-result Likewise, when syphilitic, the condition of the patient may be so cleared that satisfactory aural treatment may be instituted Unfortunately, however, tuberculosis, either general or local, is often present in these cases, and the outcome usually is failure to cure

7 The skill and judgment of the operator While of course these attributes are necessary to the success of any class of surgery, they are especially essential in the performance of the bone surgery necessary to the cure of necrosing osseous tissue which lies in the midst of important and somewhat dangerous structures, the semicircular canals, facial nerve, lateral sinus and brain coverings Overoperating incurs great risk of injury to one or more of these structures, while timidity on the part of the surgeon is pretty certain to result in failure to cure, because of failure to remove all the disease

The nature of the end-result, whether cure or failure, frequently depends on the efficiency of the after-treatment of the patient following surgical means of cure The most satisfactory end-results are secured when the surgeon who operates gives personal attention to the after-care until the wound is dermatized, and healing is assured Failure is a not infrequent termination in patients, even though thoroughly well operated on, if afterward they are assigned to the care of physicians not especially trained in the management of this class of surgery I have the personal feeling that my work is only well begun when a radical mastoid operation is performed and that it is quite as much a duty to note the entire after-progress as to operate

The nature of the end-result often depends much on the patient himself, for sometimes as soon as he is able to leave the hospital, and when the external wound is healed, he acts on the belief that all has been done in the way of treatment that should be done, and therefore neglects to return for further observation or necessary care I have seen many examples of total failure due to such neglect following the most skilful operations On the other hand, I have observed many successful endings in cases that, during the first few weeks or even months following operative measures, were most unpromising, the final cure being obtained, I believe, by persistent, well-directed after-attention While the foregoing points determine in large measure the end-results of treatment, the results themselves may be considered

As to the effect on the hearing This, in the bona fide nonsurgical cases in which there is no labyrinthic involvement, is usually favorable, since there is frequently much improvement in function and seldom actual loss above that already present Following surgical treatment, especially following the radical mastoid operation, there has been, in my experience, usually a retention of the same degree of hearing as before the operation Occasionally I have observed some loss of function, and I think quite as often there has been slight gain Great improvement of function should not be expected as an end-result of surgical treatment The prime object of such treatment is to conserve life, and improvement of hearing should usually not be promised I am aware that a few American aurists make claim of almost invariable marked functional improvement following their own technic of operation, but I believe this claim is not made by the majority of aural surgeons

As to cure of the suppuration In strictly nonsurgical cases ultimate cure may be expected In patients operated on in a more or less radical way ultimate cessation of the discharge and dermatization of the operation wound will follow in 90 per cent of cases, provided the hospital facilities are modern in every respect, the surgeon is well experienced, and the after-care of the wound is given by one skilled in the healing of this class of wounds This estimate is, of course, exclusive of tuberculous cases

As to the mortality of the patient Nonsurgical aural discharge, while it remains nonsurgical in its nature, probably never ends disastrously to the patient When bone necrosis occurs, and when the case is therefore a surgical one, danger to the life of the patient is present in each case and at all periods of the progress of the disease Proper surgical treatment does not add to that danger, but on the contrary is the best-known means of avoiding a fatal result Radical surgery of the temporal bone, performed for the purpose of curing chronic aural discharge, is of itself remarkably free from danger to life In a record of about 300 radical mastoid operations I do not recall death in a single instance that could be attributed to the operation The real danger to life arises in neglected cases of chronic aural discharge, when the disease has already approached or actually attacked some vital spot The radical mastoid operation may therefore be regarded as especially free from danger to life in all cases in which it is employed before the meninges or sigmoid sinus has been attacked by the aural suppuration

Any discussion of the end-results of treatment of chronic aural suppuration would not be complete without mention of the fact that rarely the dura is uncovered accidentally during operative procedures, the sinus may be lacerated and the facial nerve may be exposed or severed Accidental exposure of the dura or penetration of the sigmoid sinus are of little or no consequence if the wound is left clean and the accidental injuries are properly dressed and managed Injury to the facial nerve is of course a serious accident, and one much regretted, but it should always be remembered that Nature, through the necrosing processes incident to the chronic otorrhea, produces many more facial palsies than does the experienced, careful surgeon-otologist

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS MACKENZIE, PIERCE AND BARNHILL

Dr Francis P Emerson, Boston Whether we have a chronic suppurative middle ear or an acute suppurative middle ear, the first essential is drainage through the membrani tympani, drainage which implies a sufficient opening, with the removal of granulations or anything that blocks the free flow of pus After that has been established certain primary conditions of the eustachian tube, dwelt on by Drs Pierce and Mackenzie, will have to be considered They are fundamental In a rational consideration of this subject we must have in mind some conception of the way in which this infection becomes chronic, and the methods which would be employed to clear it up One of the very early conditions is that connected with imperfect ventilation of the nasal pharynx, which is caused by the septum With a badly deflected septum there is either a compensatory hypertrophy of the middle or inferior turbinal This is followed by an increased function and hypertrophy The hypertrophy causes imperfect ventilation and imperfect drainage This latter is followed by a low grade infection which is constant and persistent and a source of reinfection of the eustachian tube A little later comes a more virulent infection, and this is followed by sinusitis Any preventive measure must take into consideration all of these factors—ventilation drainage, reinfection In certain cases of mastoiditis in children it is impossible to heal that mastoid until we remove the adenoids The primary cause of this middle ear trouble was an acute infection in the nasopharynx and because the connection is not more evident when these cases come to us as chronic cases does not imply that the primary focus is not still active Any conservative treatment must take into consideration the remedying of these conditions which cause reinfection These infections that have their focus in the sinuses extend to the epipharynx, to the eustachian tube, and later to the middle ear, so that a conservative treatment of the middle ear suppuration implies straightening of the septum and trimming the turbinals You must also cure the epipharyngitis, which is often a very active cause in keeping up an irritation in the tube

Another point is that the eustachian tube on the side of the middle ear which is most involved is always the one most open If you catheterize the eustachian tube you will find that to a certain extent it has lost its power of contraction and that the condition is often made worse by auto-inflation by the patients themselves

After you have relieved the primary foci and the resulting infection, and established drainage of the middle ear, many patients will get well without further treatment All the other measures that are applied directly to the middle ear come in as a part of the secondary treatment

Dr W Eugene Dixon, Oklahoma City I was very much interested in Dr Pierce's remarks on otitis media, especially on the tubal treatment, but I wonder how many here find difficulty in using the No 1 wire with cotton on the end passed through the catheter as a guide into the eustachian tube I cannot get through the isthmus of the tube as easily as the doctor says he can I want to present a technic for passing cotton wound applicators, bougies, electrodes or syringes into the eustachian tube by the direct method without using the catheter as a guide Wind the cotton very thinly, but securely, around the applicator from the tip to one-half inch above the bend Dip it into cocain, to cocainize the mucous membrane Into one nostril pass the Holmes nasopharyngoscope Adjust it so that the upper one half of the mouth of the tube is in plain view Into the other nostril pass the cotton wound applicator in such a way that the tip of the applicator is on the floor of the nose Looking into the scope you can see it as it emerges into the nasopharynx Carry it outward, and backward into the mouth of the tube in a vertical direction, and remembering the anatomy place the tip on or near the floor of the tube, rotate the applicator or syringe tip outward, upward and backward, all the time keeping the instrument after its rotation in the upper part of the tube, or between the anterior and posterior plates of the upper portion It is very easily done

Dr Cullen F Welty, San Francisco Dr Pierce said that chronic suppuration of the middle ear is easily treated and that a cure results in a majority of cases—if the proper treatment is given This is a most remarkable statement coming from a man so prominent I have tried for weeks and months to do the various procedures that have been described, with little or no results Patients come back in two or three weeks or months with a discharge from the ear again The number of patients cured by treatment as compared with the number cured by operative procedures, is almost infinitesimal Dr Pierce also says that he cures cholesteatoma by irrigating the middle ear which is absolutely ridiculous It cannot be done, as he well knows

He also says that if there is mastoid involvement, these patients are not so likely to get well How do you know whether there is mastoid involvement? He says If there has been pain or tenderness back of the ear I challenge anybody who makes such a statement as that People may know whether they have had pain or tenderness back of the ear, but you cannot say there is mastoid involvement because of any such symptoms, as the pain and tenderness may be produced by tooth root abscess—imbedded teeth or a buried tonsil I have had to contend with all these and many more I wish to say furthermore, that in the radical mastoid operation a large percentage—90 per cent—of the cases have large lesions within the mastoid cells, lesions that could be seen at from 10 to 15 feet If we are confronted with such statements as Dr Pierce has made, somebody must have the courage of his convictions and get up and explain why this is not just as stated Dr Pierce speaks of tuberculosis—that these patients do not get well so what is the use of operating? The only treatment for a tuberculous ear is to operate thoroughly, and if you operate thoroughly you will cure them I have such cases on record

Dr Emmett L Jones, Cumberland, Md For many years I have treated my patients by a simple method which I described two years ago I believe all ear infections originate in or travel through the rhinopharynx, and if we are to treat them successfully we must begin with the rhinopharynx If we do that we will have nearly 100 cures in 100 cases With this method the hearing is always restored, the perforations heal, the discharge ceases, and there are no mastoid symptoms Patients who have had for several days purulent mastoid symptoms according to all accepted standards, following this treatment get well, and even some chronic cases are cured The basis of the treatment is the daily application to the rhinopharynx of a strong solution of phenol (carbolic acid), tincture of iodin and glycerin, from which you have the reaction of a bad sore throat Then in acute cases I dip the tip of a tampon in a solution of epinephrin in anilin, 1 1,000, with 10 per cent of cocain added, and apply that frequently to the drum membrane In a few hours the pain eases, the discharge soon amounts to nothing, and the trouble in the mastoid gets well, and there is absolute restoration of hearing

Dr J Holinger, Chicago The main part of Dr Beck's paper is his pathology Pathology of chronic suppuration of the middle-ear has not been given, and therefore we will not and cannot come to an agreement on how to treat it If we have a carefully worked out pathology, the indications will become evident, and then we might agree, but this way we cannot

Dr A E Prince, Springfield, Ill I want to direct attention to a simple method of securing a partial vacuum in cases of incipient mastoiditis Every acute inflammation of the middle-ear should be considered in its relation to the antrum and mastoid cells which are usually involved The establishment of a partial vacuum in a large percentage of acute cases, and in some subsequent cases, will prevent the extension of the disease and bring about a cure Dr Baum carried through a series of cases which were recommended for mastoid operation, by the use of Bier's vacuum method, and cured 80 per cent without an operation The method I recommend is much simpler It consists of instructing a mother or nurse to use the flaring end of a soft catheter which is selected to fit the external meatus By sucking with the mouth at frequent intervals the patient is relieved, and the disease is prevented from extending to the deeper cells, an operation is avoided in a considerable number of cases If the patient be mature he can do this himself He will know when it hurts and avoid excessive suction This is applicable after every paracentesis and every spontaneous rupture of the drum membrane It does not apply to cases of chronic suppuration, but to recent cases

Dr Oliver Tydings, Chicago The causes which brought into existence suppurative otitis media, if left uncorrected, are sufficient to keep it going to the end of time I wish to endorse the tube introduced by Dr Prince I have used that treatment for a number of years It was not original with me, I do not know where it came from I am sorry to disagree with Dr Pierce on cholesteatoma I believe that cholesteatoma has a separate and distinct etiology—and this in spite of no less an authority than Politzer My own experience is at variance with his, and proves conclusively to my mind that it is due to a separate and distinct entity from the cause of suppurative otitis media, and must be treated by separate and distinct methods of treatment I have used the same catheter Dr Pierce used, I have washed out the tympanic cavity until I was tired and the patient's endurance exhausted—and although I have not reached the degree of efficiency in the use of the catheter that Dr Pierce has—and while I was doing that work patiently, and sometimes had an erosion of the semicircular canal with the resulting disturbance of equilibrium, showing that with all my washing, I still got enough accumulation there to appall me, so I quit washing out and I have not washed an ear for this malady for some time The only thing I do or advise for cholesteatoma is to operate, and the sooner done the better In regard to vaccines I have found them useful in some cases and have gotten some very beautiful results with the mixed vaccine

Dr Harry B Harris, Dayton, Ohio It strikes me that Dr Dixon's applicators are too stiff to pass through the eustachian tube without doing injury The applicators I am using and have used in several hundreds of cases are those of Dr Yankauer I do not recall any case in which I was unable to pass the applicator through the isthmus and make my application as desired These applicators are made of very delicate wire, bent back and twisted on itself which makes it double, leaving a very small loop at the end where the cotton is applied It is impossible for the cotton to come off of this end if properly put on, and the applicators are so flexible that they easily mold themselves to the shape of the tube without undue force

Dr W Eugene Dixon, Oklahoma City I have been using these applicators since 1910, and never once in that length of time has the cotton come off The cotton is wound not only on the end, but clear back of the bend and therefore it is always in sight If it did come off all you would have to do would be to pull it out with a pair of forceps through the nose, as the bend of the instrument which is covered with cotton is not in the eustachian tube and therefore the cotton would be left hanging in the nasopharynx The new applicators are threaded on the end for some distance which holds the cotton very securely, in fact so secure that it is very difficult to remove it after the use of the applicator As far as injuring the tube is concerned, the cotton wound applicator can be passed just as gently as a catheter can be passed into the urethra It is held in one hand and passed while with the other you hold the nasopharyngoscope, and see just what you are doing in every step of the operation The sense of touch is acute and one can very readily develop a technic without doing harm

Dr William S Tomlin, Indianapolis As to tuberculosis of the middle ear, having had some experience as consultant in the treatment of tuberculosis for a sanatorium, a considerable number of patients have come under my care Of most importance in their treatment is the local application of tuberculin emulsion We start usually with the dilution No 1 or No 2, and gradually increase it Our experience has been very favorable in the local treatment of these cases where the opening into the drum was sufficiently large to make a successful application In some cases I have tried to introduce it through the eustachian tube, but that has not been successful when the opening into the drum was not large These cases require especial attention when tuberculosis develops in the throat Tubercular infection of the middle ear may be said to be almost always derived by way of the eustachian tube I am also of the opinion that the primary causes which have influenced the development of infection of the middle ear must be removed if we expect them to recover with nonoperative treatment, and in many cases even with operative treatment the ear will continue moist, giving rise to recurrences, if you do not remove the cause In some cases in which I have not been able to find adenoids, teeth, infected tonsils or indications of the source of infection, the treatment of the lower end of the eustachian tube has brought about results In these cases I have found the patients would state that they had noticed when attempting to blow the nose in the ordinary way, without any extraordinary force, they would constantly hear the blowing of the air into the middle ear

Dr Charles M Robertson, Chicago I have been waiting to hear some one raise the point of diagnosis of perforation of the tympanic membrane In chronic suppuration of the middle ear if the discharge consists of mucus from the eustachian tube, there is no use putting on suction, there is no use putting medicine in the ear, there is no use in lavage If the patient wishes to clear the tube he can do it by blowing the air through from the pharynx In case of suppurative disease of the ear per se, if the discharge is coming down from the attic, there is no use to wash by cannula as the case requires operative treatment In regard to perforations, we divide them into innocent and dangerous If it is a dangerous perforation there is no use in trying anything else but an operation When the opening in the drum membrane is large anteriorly and of innocent type the case is usually tubal and the tube should be destroyed With the perforation in Shrapnell's membrane, there is no use to expect results by topical treatment, the opening should be enlarged to promote drainage and if this is not sufficient to produce cessation of discharge the patient should be operated on by a complete exenteration I use the gauze treatment in the last part of a suppurative discharge in acute cases and it has done very well in suppurations of this type In all of these chronic cases a radical mastoid operation should be performed

Dr **Clark W Hawley**, Chicago I do not know how to treat suppurating ears This man says do this, and that one says do that I say it depends on the symptoms in each case In acute suppurating ears do not use water I use absolutely no water, I have not washed a suppurating ear for twenty years I simply put a piece of cotton on a small toothpick and pass that into the ear until I get it clean

Dr **George W Mackenzie**, Philadelphia We should anticipate complications before they arise In the first place, any acute middle ear suppuration which endures for more than six weeks is complicated There is something that is delaying recovery, and it is for us with what knowledge we possess of the pathology of middle ear suppuration to determine what is at fault and whether there is a single factor or multiple factors By a thorough examination one is often made aware of complications before the patient complains of symptoms suggesting them Nine or ten years ago I examined a series of 117 cases of cholesteatoma They were examined before operation and a diagnosis of cholesteatoma was made in every case by a microscopic examination of the washings from the ears The results of these examinations were published The secretion of little flaky particles that come out of the ear when washed is put under the microscope in its natural state and examined for micro-organisms and crystals The crystals are rhomboidal in shape, many with a corner broken off When cholesterin crystals are found, the patient has a cholesteatoma In 117 cases in which radical operation was performed, the diagnosis made by the microscope prior to operation, was substantiated Furthermore, there was not a single case of cholesteatoma that had not one or more complications, which, I think, is the strongest argument in favor of operating in all cases of cholesteatoma We run too much risk by trusting to conservative methods

Dr **Norval H Pierce**, Chicago My brief remarks were for the purpose of calling attention to my views regarding chronic suppurative otitis media, and I endeavored to show that chronic suppurative otitis media is not a simple matter It is not an entity A discharge from the ear is only a symptom of a very complicated pathology involving a very complicated organ I think I do as many radical mastoid operations as any gentleman present I do not hesitate to do a radical mastoid operation But I think that the man who on seeing a chronic discharge from the ear says that the only possible treatment for it is a radical mastoid operation is devoid of proper education or is a fanatic I regard cholesteatoma as it involves the ear as a very dangerous condition, one that most frequently calls for proper radical treatment I have cured cholesteatomatous conditions of the middle ear by other means than the radical operation, and have retained for the patient a sound conducting apparatus that has a very much better function than the sound conducting apparatus of a patient who has been operated by the radical method after four or five years I am not disparaging radical work I am hoping that you will not regard the suppurative ear as an indication, and unequivocal indication, for radical work Dr Dixon drew attention to his applicators for the eustachian tube The eustachian tube is not a straight tube, it is a tube that has more or less of an angle at the isthmus, and I cannot see how he can drive that straight inflexible staff up a tube that has an acute angle. That is the reason I use a very flexible silver applicator There are tubes through which we cannot push even this very flexible applicator because of the acuteness of the tubal angle. Regarding the strictures of the tube, Schwartzen a very long time ago investigated on the dead body the frequency with which organic strictures of the tube occur, and his report was to the effect that in simple inflammatory conditions, strictures of the tube practically never occurred They occur as the result of diphtheria, syphilis, and some other diseases, but then the strictures are situated at the pharyngeal end of the tube, and according to his report there was never a stricture at the isthmus The reason men think the tube is very frequently the site of stricture is because the probe, or bougie, or applicator is arrested at the acute angle I am sorry to think that any gentleman in this section would criticize a remark that I might make here as absurd and ridiculous I have given this question of otology the best part of my life I have tried to analyze cases, having ample opportunity and material to reach certain conclusions, and I say now, that if we do not treat these chronic suppurative inflammations in an intelligent manner, if we resort immediately to the destructive—because it is destructive—radical procedure, if we do not attempt to bring about a cure in these cases that present no symptoms of rapid advancement of cerebral or other complications, then we are not doing our duty to our patients and are undoubtedly rendering ourselves liable to the very ignominious appellation of plain, ordinary, common or garden variety of butcher

Dr **John F Barnhill**, Indianapolis Some remarks were made that it seems to me ought to be corrected The question is the problem we must meet in the chronic discharging ear Each patient is a problem If the problem is a simple one, if, as Dr Pierce has said, the whole trouble is in the eustachian tube, clearly the problem is one of the eustachian tube and not of a mastoid operation If the trouble is in the environment of the ear, if there is a bad state of ventilation, if it is the epipharynx that is involved, then the problem should be attacked from that angle One gentleman says 100 per cent of his patients were cured by his treatment of the epipharynx I believe these were acute cases and therefore do not fall within the line of our discussion I think every one recognizes the value ordinarily, of treatment of the epipharynx, but to allow a statement such as Dr Jones made, that 100 per cent of patients were cured by this treatment, to go unchallenged, would be wrong Now I think we have seen cases in which we have not had any time to make any application to the nasopharynx There is often a mastoiditis almost as soon as there is a middle-ear disease, and it does not stand to reason that we could cure that kind of mastoiditis by local application to the nasopharynx If there is necrosed bone, and if reasonable local treatment has been given, I think Dr Pierce will agree with me that if the suppuration continues some kind of surgery is necessary, and that radical mastoid surgery is best If there is cholesteatoma present, I think that not 95 per cent but 99 per cent of these cases are cases for the radical mastoid operation So many of them are complicated Suppuration from the ear means that something is rotting Pus is the product of decay, and if something is decaying and the decay continues long enough it will get into the meninges, the sinuses and the labyrinth, or some other dangerous place It is not wise to stand by indefinitely and allow a chronic suppuration to go on without warning our patients that an operation, after reasonable treatment, is the best and safest procedure

Dr **J Holinger**, Chicago I should like to caution against the use of anilin I have seen serious symptoms of poisoning develop after a few drops of the oil were poured in the ear It was a case of acute otitis media without perforation, and while it was not fatal, it kept me in hot water for a whole night I never shall use anilin in the ear under any condition

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The Anesthetist—The surgeon is greatly dependent on the anesthetist The risks of anesthesia should not be disregarded, and will not be underestimated by any one who has encountered fatal idiosyncrasies in patients In a difficult case the skill of the anesthetist may be of no less importance than that of the surgeon himself—S S Goldwater, M D, *Modern Hospital*, November, 1916

WOUNDS IN WAR AND METHODS OF TREATMENT

A U DESJARDINS, M D
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WATERVILLE, MAINE

Before the wounds produced by modern military projectiles as seen in the present war are described, and before the methods which have been found most efficient in dealing with them are discussed, a brief consideration of how these injuries are inflicted and especially of the conditions under which they are received may not be out of place, because those conditions have an important bearing on the character of the wounds and on their treatment As Surgeon-General Sir Anthony Bowlby[1] has stated, "one of the most important points for present consideration in connection with the wounds of war is the geographical situation of the battlefield"

During the first five or six weeks of the war the fighting was in the open, but, since the battle of the Marne, with a few exceptions the contending forces have lived and fought in trenches The territory in which the fighting has been done is, or was before the war, a thickly populated and intensively cultivated region The soil, on the whole, is a rich loam, and for generations it has been heavily manured It produces abundant crops, and provides sustenance for large numbers of cattle Then, too, the climate is moist During the winter months, from late October until early April, it rains on about five out of seven days, and during the summer months there are many cloudy days Such conditions, as one might expect, are ideal for bacterial growth, and this soil teems with micro-organisms of every kind, including large numbers of spore-forming pathogenic anaerobes

The trenches are deep, and for long periods the soldiers have to stand or move about in mud and water to their ankles or even to their knees They have to sleep as best they can on the floor of the trench, on dirt shelves dug out of the trench, or in one of the scattered shelters made of rough timber, so that they are covered with dirt and mud from head to foot, especially during the winter

If a man in the trenches is hit and falls, he has to lie in the dirt, mud or water until assisted by comrades Every soldier is provided with an individual dressing which is immediately applied by himself, by a comrade or by stretcher bearers as dirty as himself One can imagine what such a dressing is If he is able to walk, he goes by a narrow communicating trench to the nearest *poste de secours* or dressing station located in an underground shelter or cellar, protected against shell fire, from several hundred feet to several hundred yards back If unable to walk, he must be carried, but the trenches are narrow and crooked, and render the use of an ordinary stretcher out of the question To overcome this difficulty, both French and English have devised an ingenious trench stretcher If a heavy bombardment or an attack is in progress, the wounded often have to lie for hours where they have dropped, until they can with some degree of safety either walk back to the dressing station or be picked up and carried by stretcher bearers During an attack on the enemy trenches it often happens that a wounded man has to lie in the open between the opposing trenches until nightfall affords him sufficient protection to crawl back to his own trenches, or permits a relief party to bring him in

In a large percentage of cases there is a considerable interval between the injury and the first dressing at the dressing station During the first month of the war many men remained on the field for a number of days before being picked up, and the results of such prolonged exposure to every factor favorable to infection would be impossible to describe The sudden necessity of defending their territory made it necessary for the French to utilize every means of transport to push their troops to meet the rapidly advancing enemy and to keep these troops supplied with food and ammunition Force of strenuous circumstances made the care of the wounded a secondary consideration During the first month of the war large numbers of French wounded fell into the hands of the Germans At the battle of the Marne, thousands of French wounded, after remaining on the field for several days in many cases, had to spend several hours more baking in freight or even open flat cars under a hot August sun on some railroad siding, their wounds in the meantime "stewing in their own juices," while trainload on trainload of troops was being sent forward to pursue the fleeing Teutons By October, 1914, however, this state of affairs had considerably improved, and has been steadily improving ever since, until now the wounded are evacuated and cared for as quickly and as efficiently as can possibly be done with due consideration to the character of the fighting and the difficulties it presents And these difficulties are great

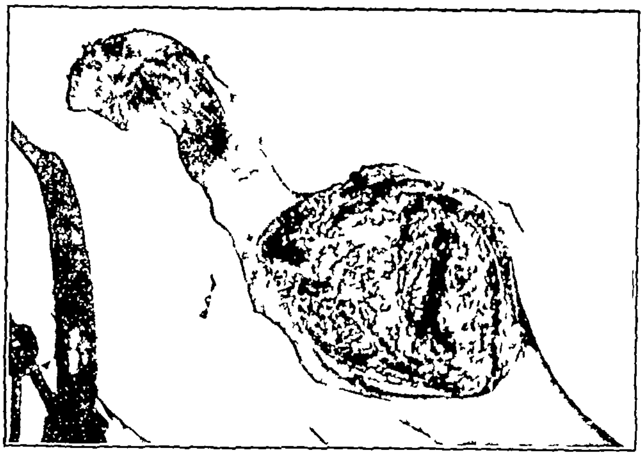
Fig 1—High explosive shell wound of right shoulder with destruction of deltoid and shattering of upper third of right humerus (Photograph by King—American Ambulance)

During the open fighting which characterized the first weeks of the war, the French armies, obliged to retreat before the vastly superior numbers of the Germans, could not establish any but temporary field hospitals The best which could be done at that time was to put the wounded on cars and send them back to base hospitals in Paris and the provinces to the south But after the battle of the Marne had forced the Germans to "dig themselves in" and the Allies to imitate them, it became possible to establish at short distances behind the lines temporary field ambulances,[2] which were gradually organized so that urgent operations could be done We must remember that all these dressing stations and field ambulances are within artillery range Sometimes field ambulances are located in buildings partly demolished by previous bombardments, sometimes in a cellar, others again are located, as in the Vosges and Argonne districts, in underground chambers dug out of the side of a hill and carefully concealed and protected against shell fire The equipment of these ambulances depends to a large extent on the resourcefulness and ingenuity of the surgeon in charge In spite of tremendous difficulties, however many of these field hospitals are equipped with every essential to the performance of all kinds of major surgery

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[1] Bowlby Anthony Bradshaw Lecture on Wounds in War, Brit Jour Surg 1916 3, 451

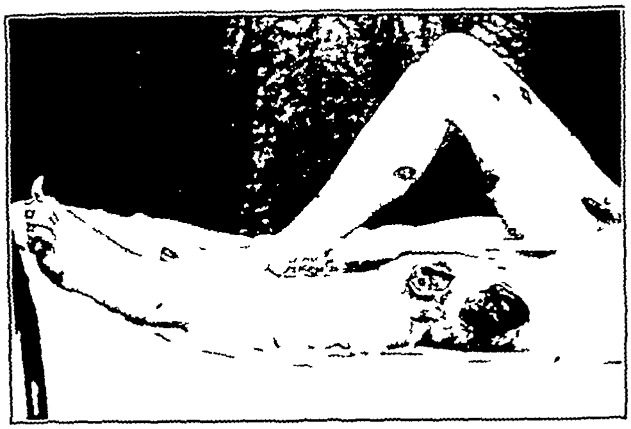

Fig 2—Multiple shell wounds of both lower extremities with purulent arthritis of left knee Photograph taken on admission Bridge plaster cast applied at evacuation hospital (Courtesy of the American Ambulance)

To give an idea of the difficulties with which they have to contend, a French surgeon in charge of a field hospital of 2,000 beds behind the Somme front told me not long ago that, in one period of thirty-six hours, 600 wounded had passed through his own hands He had worked out a new splint for fractures of the femur, but with such a rush of the work he had been able to apply it in only a few cases and had not been able to follow its results, because the wounded had to be evacuated immediately to make room for fresh arrivals This impossibility of following cases and seeing the final results of their work is one of the most serious handicaps of field ambulance surgeons But war is war, and a field hospital must always be ready to receive and quickly care for the newly wounded and keep itself cleared by evacuating them as soon as possible to the base hospitals by way of the intermediate evacuation hospitals This will explain why it is that the best ground on which to study the wounds of the war and the different infections and complications which so frequently accompany them is the base hospital because here cases can be followed, and the results of any line of treatment can be controlled by daily observation Another surgeon, working behind the Verdun front, told me that in one week he and his associate had performed 400 operations in an underground ambulance and under shell fire much of the time Under such circumstances errors of judgment are to be expected, and technic must be boiled down to the bare essentials

At the dressing station the wounds are given their first real dressing by a surgeon, who may have had antebellum surgical experience, or who, previous to the war, may have been a general practitioner or a recent hospital intern No operations are performed at the dressing stations The wounds are examined, quickly dressed with a view both to the cleanliness of the wound and to the comfort of the patient, and the men sent back, on foot if they can walk, or on a stretcher suspended from a two-wheeled cart pushed or pulled by two men, or sometimes in a horse-drawn ambulance, to the nearest field hospital Here they are given one or more doses of tetanus antitoxin, their wounds are explored and drained, accessible foreign bodies are removed, fractures are temporarily splinted, and all patients in condition to be transported are then sent by motor ambulances to the nearest evacuation hospital In very serious cases the patients may be kept at the field hospital until their condition warrants transportation At the evacuation hospital, for instance at Bar le Duc or at Revigny for the Verdun front, or at Amiens for the French part of the Somme front, they may be kept for a few hours to several weeks depending on their condition, the intensity of the fighting going on at that portion of the front, and the numbers of wounded requiring attention Here wounds are more thoroughly drained, fractures are put into more permanent splints for treatment or for transportation, and the men are then sent on by train to the base hospitals in Paris or in other provincial cities By the time they reach the base hospital, therefore, they have as a rule had more or less treatment, although during periods of heavy fighting it occasionally happens that some men reach the base twenty-four, thirty-six or forty-eight hours from the time they have been wounded, and with the original dressing applied at the dressing station still undisturbed The average time between the wound and the arrival at the base hospital is about two weeks

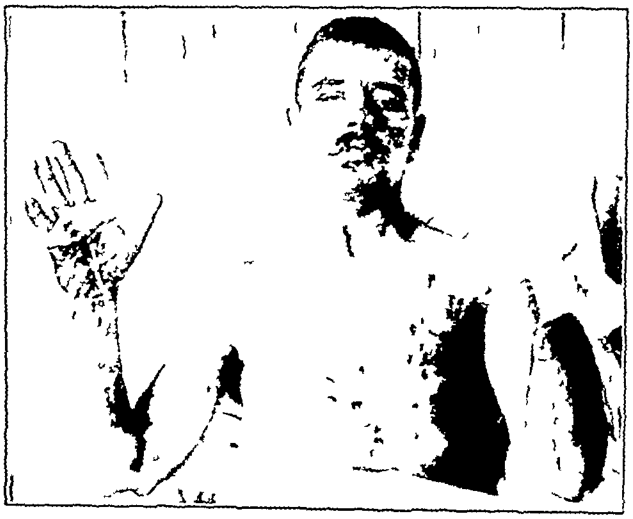

Fig 3—Multiple bomb wounds of face chest and both upper extremities. (Courtesy of the American Ambulance)

PROJECTILES AND WOUNDS

It is impossible at this time to estimate the proportion of wounds caused by bullet, shell, shrapnel, bayonet, bomb or grenade During the first weeks of open fighting leading to and including the battle of the Marne, the number of bullet wounds was relatively high Since that time, however, a large proportion of the wounds have been caused by shell, shrapnel, bomb or grenade Bayonet wounds are rarely seen except in the immediate zone of fighting, because such injuries, being inflicted at close quarters, the long blade generally penetrating the abdomen or the chest, usually mean instant or early death. Men so wounded seldom live to reach a base hospital.

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[2] 'Ambulance' is a name given in France to a temporary military hospital to distinguish it from a permanent military hospital

The construction and ballistics of the different types of projectiles have been amply described and explained by others. I shall limit myself, therefore, to those features which are peculiar to this war.

The effect of the pointed rifle bullet depends largely on the distance from which it has been fired. The proximity of the opposing trenches accounts for the frequency of the explosive effects observed in many cases. During the early stage of the war such results led to charges that the Germans were using dumdum bullets. There may have been isolated instances in which a soldier turned the bullet rear end forward in order to inflict more damage, but this is not at all necessary to explain the explosive effects which Reverdin of Geneva has found to be due to the violent impact of the bullet on a fluid-containing object or tissue.

The impact of one of these bullets on a large bone especially at short range, causes extensive shattering, and the fragments are driven with great force into or through the surrounding soft parts with resulting wide rents of skin and fascia and extrusion of muscle. Rarely one encounters a clean perforation of a bone without fracture or with only a fissured fracture. Almost invariably, however, bullet fractures are badly comminuted.

Shells are largely of two kinds, shrapnel or high explosive, and on account of the greater effectiveness and destructive power of the latter, more and more of this type are being used. The effective range of the shrapnel shell is not very great, because the balls rapidly lose their initial velocity. The wounds they produce are not as bad as the worst of those inflicted by the ordinary rifle or machine gun bullet, but, being easily deformed, in some cases they are responsible for considerable damage. On the whole, however, their destructive power is not very great.

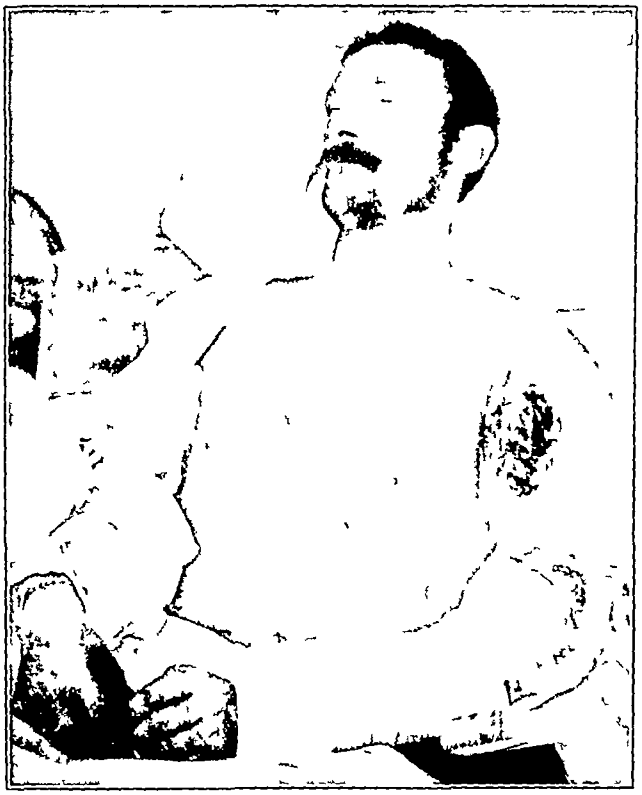

Fig. 4.—Perforating shell wound of upper left arm with compound comminuted and badly infected fracture of left humerus. (Photograph by King—American Ambulance.)

Of all the projectiles, none produces such frightful or extensive wounds as the high explosive shell, which in bursting projects with intense violence innumerable jagged fragments of every size from that of a grain of sand to pieces as big as one's hand. And the size of the piece may bear no relation whatever to the size of the wound. The sharp, irregular edges tear skin, fascia and muscle, and pulpify nerves and vessels, causing widespread crushing, contusion, extravasation of blood and sloughing of large areas. One of the worst features of such wounds is that these fragments of shell tear off pieces of clothing, which are carried into the deepest portions of the wound, so that it is extremely common, even in superficial wounds, to find their edges and raw surface covered with shreds of clothing. In deep wounds with widespread laceration of tissues, such pieces of clothing, covered as they are with the dirt of months in the trenches, find favorable lodging in recesses filled with extravasated blood, and are responsible for much infection. Even if a soldier is not actually struck by one of these fragments, the force of the explosion as the shell strikes the ground may project stones, sand and mud, and thus produce wounds which may be very serious. I well remember one man who had been wounded at Douamont, near Verdun. His right thigh showed three deep, penetrating wounds which, when incised and explored, were found to contain a small handful of stones. In another man I recall taking out several pieces of wood which had been driven into an ugly wound of the buttock.

The sudden violent explosion of one of these shells, especially those of large caliber, causes such an atmospheric disturbance in its immediate neighborhood as sometimes to produce death without any external wounds. In some of these cases there has been found a rupture of one or both lungs; in others nothing could be found beyond numerous petechial hemorrhages of the brain.

Bombs, grenades and torpedoes are of many kinds. They essentially consist of a container of iron or some other metal filled with a variable charge of high explosive powder, and are particularly vicious because they explode in the trenches, within a confined space, often producing multiple nasty wounds which, like the shell wounds, are always badly infected by the dirt, mud or clothing introduced by the fragments. These fragments are usually small, however, and as they quickly lose their velocity, do not generally produce the extensive ravages encountered in shell wounds.

In all these injuries the effects are not limited to the immediate wound tract, but may be spread over a wide area, and on microscopic examination pathologic tissue changes may be found "at a considerable distance from the site of the obvious injury."[1]

COMPLICATING FACTORS

By far the most serious complicating factor is the general infection of all the wounds. We have already studied the conditions that lead to this infection, which is always of a very mixed character, although in some cases one organism or another may predominate.

Tetanus and gas infection, while still occasionally encountered, are not nearly so prevalent now as they were in the fall of 1914 This dreaded gas infection, so rare in ordinary civil practice, has been and still is one of the problems of the surgery of this war

GAS INFECTION

The infection is due to the introduction into the tissues of gas-forming anaerobic organisms, chiefly the *Bacillus aerogenes-capsulatus* of Welch, known in France as the *Bacillus perfringens* Cultures made from a long series of wounds at an early stage show its presence, usually in conjunction with pyogenic organisms, in a large proportion Fortunately, in most of the wounds the tissues are so widely ripped open as not to provide the anaerobic conditions necessary for the growth and activity of the organisms, because in a large percentage of cases they disappear in a short time In a few cases, however, while the gas formation may be limited to the injured part the infection may be so intense as to overwhelm the patient in a few hours The type of wound in which the rapidly spreading form of the infection is generally seen is the deep wound in which the projectile, instead of widely tearing the muscles apart, has split fascia and muscle, and lodged, often after injuring the vessels, in some muscle mass, as in the calf, thigh or arm The majority of the cases seen were in deep wounds of the thigh

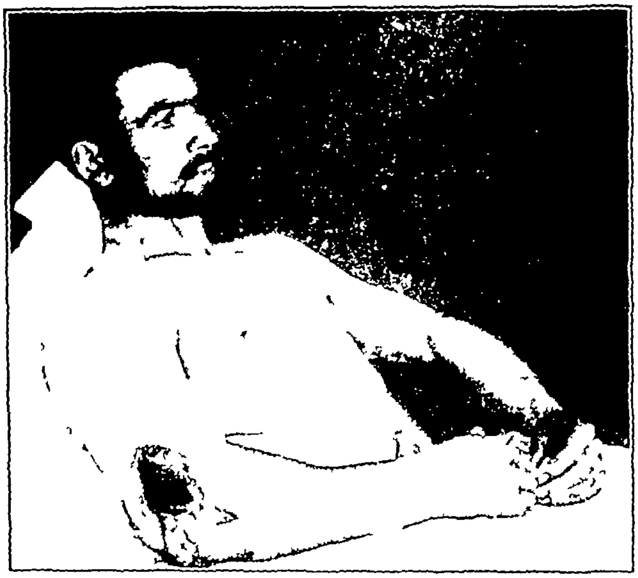

Fig 5 —Gas infection of right arm with shell wound of lower arm Note distention of arm and edema of hand (Courtesy of Dr Joseph A Blake)

To give an idea of the appearances and behavior of gas infection, I shall take an actual case and for the sake of science, allow the condition to follow its natural course

A French soldier was brought in during the night let us say having been wounded in the right thigh four days previously by a piece of shell He has had only one or possibly two dressings On entering the ward in the morning and approaching the new patient's bed one may be struck by an odor which is something between fresh manure and ancient eggs The temperature may be anything between 99 and 101 or 102 and the pulse from 100 to 120 The patient is restless and complains of considerable pain about his thigh When the dressing is removed the first thing to attract one's attention is the distention of the thigh it may be twice its normal size Areas of bluish or purplish discoloration and sometimes a number of blebs may be apparent in the region of the wound On palpation the skin is tense and on gentle pressure a distinct crepitation may be felt On examination of the wound the skin will be found split or torn apart, and a mass of dry, grayish brown muscle protruding If the dead muscle is spread about the wound tract or a probe passed into it, a thick, muddy brown pus will exude, and if pressure is made on the tissues about the wound, bubbles will be seen in the discharge or even on the muscle surface The odor from the wound is quite characteristic Aside from the restlessness, the patient may not look very ill and one may be easily deceived When first seen at 8 o'clock, the crepitation extended up to the groin At noon the crepitation may have reached the umbilicus The discoloration has increased At 3 o'clock the crepitation may extend to the pectoral region By 9 o'clock the gas has begun to raise the skin of the neck and the local signs at the thigh have increased In the wound the protruding muscle is quite dead dry and brittle except along the tract of the missile, which is covered with a dirty muddy brown discharge mixed with bubbles of gas At midnight the patient is more restless, the temperature may have gone down but the pulse has begun to flicker The neck is now well distended and crepitating At 3 in the morning the eyelids begin to look puffy, and the patient begins to complain of difficulty with his respiration The gas has invaded the tissues about the throat and as it increases, the respiration gradually becomes stertorous The patient who, until now, has shown a clear mind, begins to wander and by 9 o'clock he is dead

This is about the course of rapidly spreading gas infection, but in some cases neither the onset nor the progress of the condition is so rapid Furthermore, as already stated, only a small proportion of the wounds infected with gas-forming anaerobes follow such a course

Taylor[3] has shown that the pathology of gas infection consists essentially of a widespread degeneration of the muscle fibers subjected to the increasing pressure of the gas resulting from the activity of the anaerobes which find an ideal medium in masses of

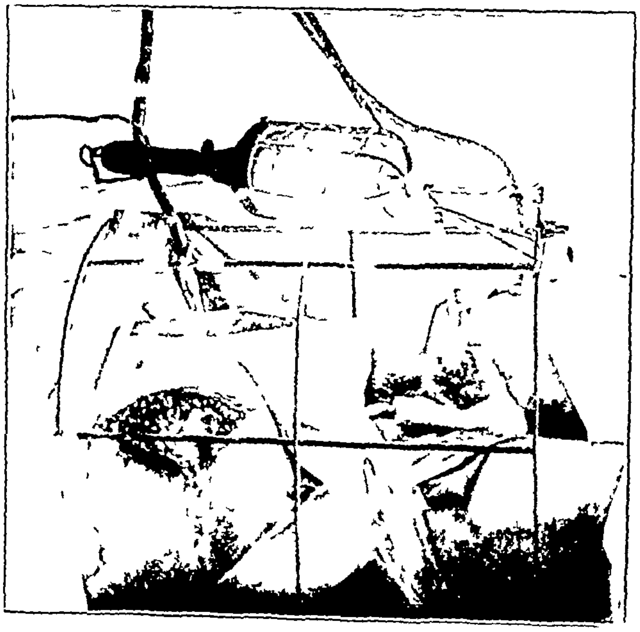

Fig 6 —Superficial shell wounds of abdomen and scrotum with bilateral testicular hernia treated with Dakin solution and electric light Note erosion of skin of right side by solution (Photograph by the author)

contused and devitalized muscle, especially when the main blood vessels of the limb have also been involved in the injury. This is followed by rapid systemic intoxication and septicemia.

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[3] Taylor Observations on the Pathology and Bacteriology of Gas Gangrene Jour Path and Bacteriol 1916 20 La gangrene gaze [illegible] evolution et traitement Arch de med et de Pharmacie militaire 1 1

METHODS OF TREATMENT

In the surgery of civil life an injury is not usually exposed to so many evil influences, and the prompt attention it receives has much to do with the comparatively uneventful recovery of the patient. If a soldier could keep relatively clean, and if, when wounded, he could be immediately taken to a well-equipped hospital and cared for, instead of having to be left lying for hours in dirt and mud with one or more wounds filled with dirty clothing, dead tissue, extravasated blood, and one or more foreign bodies, we might expect a better course and a more rapid recovery, and reconstructive surgical procedures could be employed sooner with shortening of disability.

Much has been written about the treatment of wounds, especially in Europe, since the war has given such an importance to the subject. The first great problem, since it is impossible to prevent the infection of these wounds, has been how to combat this infection. It was early recognized that one important step in the right direction was an early and thorough exploration and cleansing of the wounds. It was for this purpose that both the French and the English took advantage of the comparatively stationary position of their armies to establish immediately behind their lines field hospitals in which the wounds could receive the earliest possible attention. This measure alone has been the means of saving thousands of men. In the cases with abdominal wounds, for instance, it has been shown that the mortality depended absolutely on the time between the reception of the injury and the operation. Unfortunately, the range of usefulness of these field hospitals has necessarily been somewhat restricted by the very conditions under which the work has to be done.

And now we come to another great problem, and that is the use of antiseptics in an effort to bring about rapid sterilization and healing. If I may again quote Sir Anthony Bowlby:[1]

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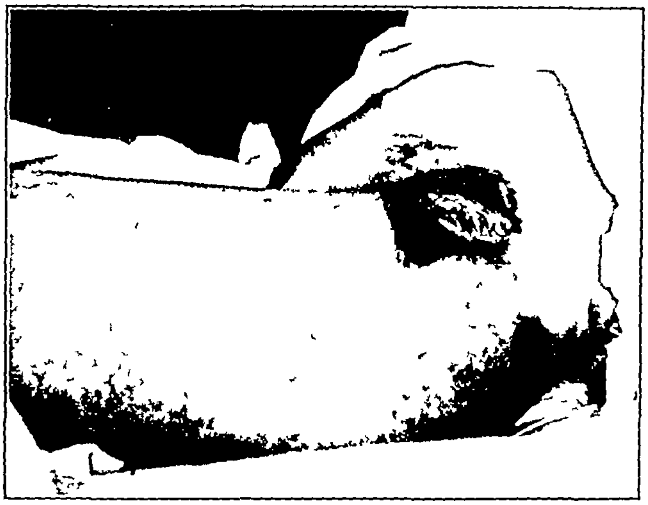

Fig 7.—Perforating shell wound of left iliac region, no fracture. Simple drainage and wet dressings. (Courtesy of the American Ambulance.)

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[4] Wright, A. E.: Wound Infections and Their Treatment, Lancet, London, Oct. 30, Nov. 6 and 13, 1915.

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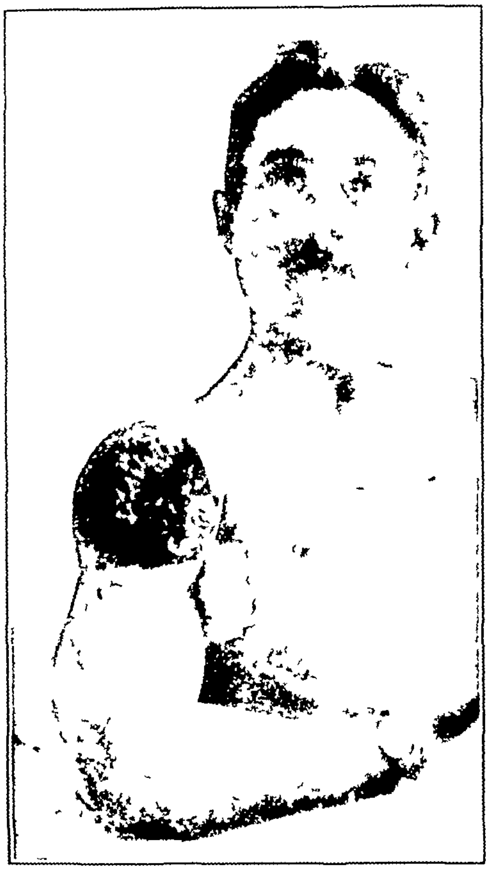

Fig 8—Shell wound of right shoulder, showing almost pure culture of B aerogenes capsulatus, but no clinical symptoms of gaseous emphysema Wound healed quickly under wet hypertonic saline dressings (Photograph by the author)

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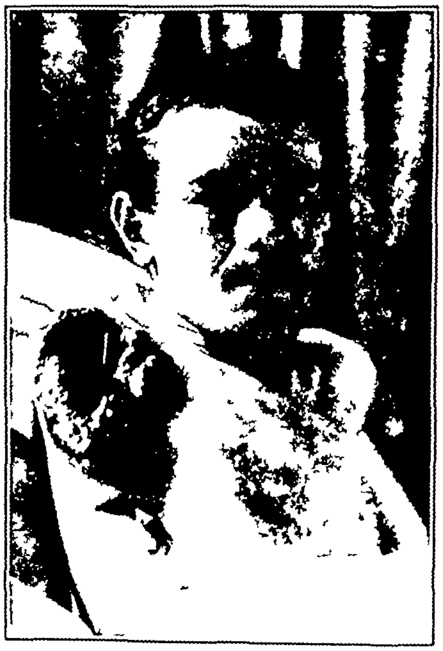

Fig 9—Right arm torn off by shell Wound badly infected Drainage and wet dressings (Photograph by the author)

contused and devitalized muscle, especially when the main blood vessels of the limb have also been involved in the injury This is followed by rapid systemic intoxication and septicemia

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[5] Flint The Treatment of Fractures by Methods of Suspension and Extension Ann Surg June 1916

METHODS OF TREATMENT

In the surgery of civil life an injury is not usually exposed to so many evil influences, and the prompt attention it receives has much to do with the comparatively uneventful recovery of the patient If a soldier could keep relatively clean, and if, when wounded, he could be immediately taken to a well-equipped hospital and cared for, instead of having to be left lying for hours in dirt and mud with one or more wounds filled with dirty clothing, dead tissue, extravasated blood, and one or more foreign bodies, we might expect a better course and a more rapid recovery, and reconstructive surgical procedures could be employed sooner with shortening of disability

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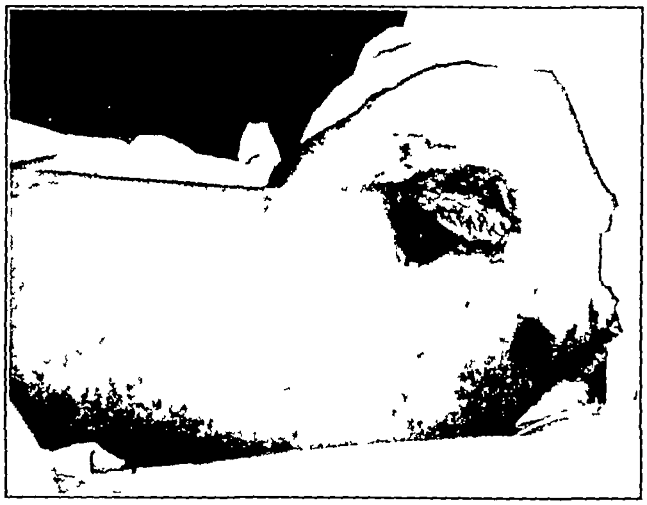

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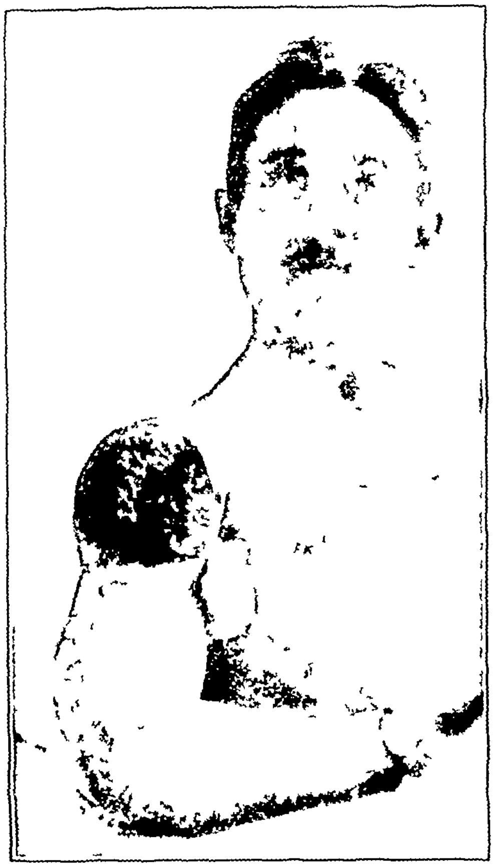

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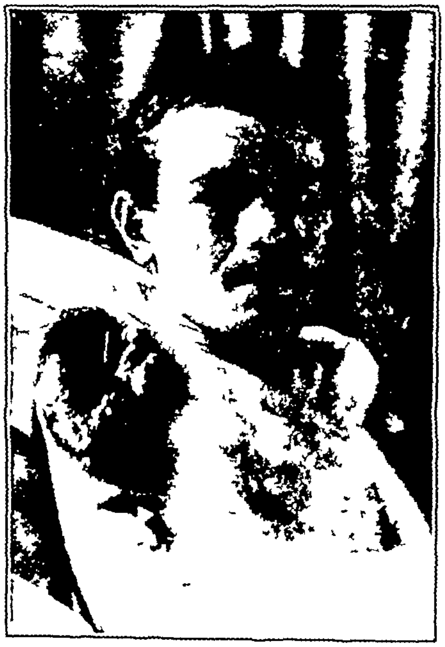

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because of a too great loss of substance, Albee's method of autogenous bone transplantation facilitates the restoration to usefulness of limbs which, in years past, would have been doomed to amputation Amputation is, as it should be, a measure of last resort, and, as the methods of dealing with infection and fractures are improving, the number of amputations is diminishing The importance of the after-treatment of these fractures and joint injuries was soon realized by the French surgeons, and the Service de Sante has established in different parts of France large hospitals, thoroughly equipped to give mechanotherapeutic, electrotherapeutic and orthopedic treatment to large numbers of men

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[5] Flint The Treatment of Fractures by Methods of Suspension and Extension Ann Surg June 1916

The "plastic" restoration of losses of substance in the soft parts is another important phase of military surgery, and the keen surgeon, who is interested in plastic work, will find much stimulation in following the work of such men as Morestin of the Val de Grace, in Paris

The treatment of gas infection depends entirely on the stage of the disease when first seen If the injured part shows only a limited area of distention, with or without crepitation, the first indication is to lay open the infected area by multiple free incisions, and to remove all foreign material, the incisions are to allow the escape of gas, and in this way to prevent the destruction of muscle tissue After ample drainage has been provided for, continuous irrigation may be tried Taylor, after extensive experiments, advises the use of a 1 per cent solution of quinin hydrochlorid If, in spite of these measures, the crepitation continues to extend, no time should be lost in vain hope, the limb should come off at once If the infection is located in the thigh, the amputation should be at or near the hip joint Various methods have been tried, such as subfascial injections of oxygen gas or peroxid, but the results have not given much faith in such measures, in spite of their apparently sound theoretical basis

The greatest lesson to be learned from the surgery of this war can be summed up in the two words, "intelligent conservatism"

THE PRODUCTION OF AN ANTIPOLIOMYELITIC SERUM[*]

JOHN W NUZUM MD
Resident Pathologist Cook County Hospital
CHICAGO

The many deplorable deformities attendant on infantile paralysis, together with the high mortality of recent epidemics, demands that a most intensive study be made to discover some therapeutic measure which may curtail the ravages of this disease A study of the recent epidemics in Chicago, New York and elsewhere has revealed certain constant bacteriologic findings What appears to be the same peculiar micro-organism has been repeatedly isolated from the tonsils,[1] brain, spinal cords[2] and cerebrospinal fluids[3] of patients in widely separated cities The presence of this polymorphous organism so constantly in the spinal fluid during life,[4] even shortly after the onset of the paralysis, and the discovery that the coccus remains in the spinal fluid and can be readily isolated in pure culture several weeks after the onset of the disease, not alone offers a most important clinical diagnostic procedure but also suggests at once a source for obtaining the organisms both for experimental biologic studies and for animal immunization experiments There is evidence to show that the coccus so constantly present in poliomyelitic spinal fluids is not present in normal cerebrospinal fluids, nor has it as yet been isolated from the spinal fluid of patients with scarlet fever, varicella, diphtheria or other diseases presenting more or less confusing clinical similarity with infantile paralysis These studies will be made the subject of a subsequent communication

A therapeutic measure which may ultimately offer hope in this disease would seem to be the production of a specific antiserum for the causative organism The vital question apparently centers on whether or not the quantities of antibodies produced in animals by methods of immunization will suffice to exert either sufficient antibactericidal action or, what may be of even greater moment, to effect the neutralization of the toxins formed by the bacteria It must be admitted that the most efficient antiserums have been obtained with those organisms which produce potent toxins The meager evidence at hand suggests that the pathologic changes in poliomyelitis may be the result chiefly of the endotoxic products of the micro-organism If this proves to be correct, then the problem appears more complex since endotoxins do not as a rule produce highly potent antiserums possessing great therapeutic value in the treatment of human infections

To determine these questions animal immunization experiments were begun, Nov 1, 1916 A detailed study of the production of an immune serum for the organism isolated from poliomyelitic cases forms the basis of this paper

IMMUNIZATION OF ANIMALS

Three healthy sheep, two lambs and four rabbits were selected and immunized according to the rapid method described by Amoss and Wollstein[5] They showed that an equally potent serum can be produced in from eight to twelve weeks by their method, instead of in from eight to twelve months, as required by previous immunization methods The animals received intravenous injections of living organisms in increasing doses on three successive days, followed by periods of rest of seven days The twenty-four hour growth on a dextrose agar slant was suspended in 2 c c of sterile normal salt solution, and 0 1 c c of this suspension, or one twentieth of an agar slant, was slowly injected in 10 c c of physiologic sodium chlorid solution into the jugular vein of each sheep The rectal temperature was recorded hourly, and a febrile reaction following each single injection served roughly to gage the optimum dosage Twenty-four hours after the first injection, 0 2 c c suspension and on the third day 0 3 c c of the foregoing suspension of bacteria in 10 c c saline solution were injected intravenously This was followed by a period of rest of seven days when the second series of injections was instituted

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[*] From the laboratory of pathology of the Cook County Hospital

[*] This work has been very materially aided by a special grant made by President Peter Reinberg and the members of the Board of Commissioners of Cook County Ill

[1] Rosenow E C Towne E B and Wheeler G W The Etiology of Epidemic Poliomyelitis THE JOURNAL A M A Oct 21 1916 p 1202

[2] Mathers George Some Bacteriologic Observations on Epidemic Poliomyelitis THE JOURNAL A M A, Sept 30 1916 p 1019

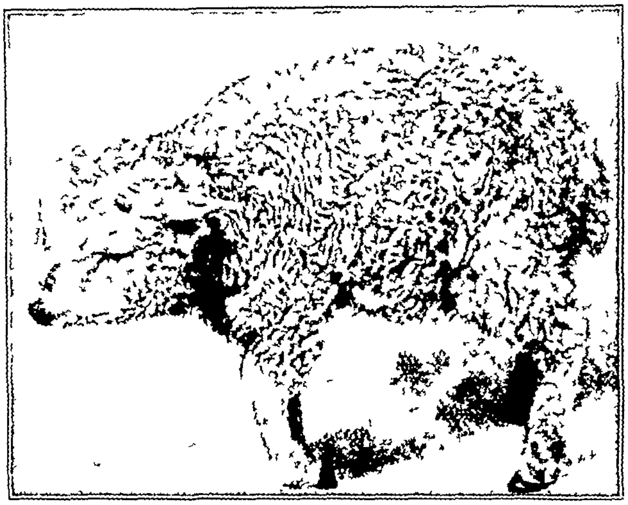
[3] Nuzum, J W and Herzog Maximilian Experimental Studies in the Etiology of Acute Epidemic Poliomyelitis THE JOURNAL A M A Oct 21 1916 p 1205

[4] Nuzum John W Bacteriologic Findings in the Cerebrospinal Fluid in Poliomyelitis THE JOURNAL A M A Nov 11 1916 p 1437

[5] Amoss H L and Wollstein Martha A Method for the Rapid Preparation of Antimeningitis Serum Jour Exper Med 1916 23, 403

0 3 c c being given the first day, 0 4 c c the second day and 0 5 c c, or one fourth of an agar slant, the third day The first series of injections consisted of a group of five representative strains of the coccus isolated from poliomyelitic cerebrospinal fluids For the second series, five strains isolated from poliomyelitic brains and cords at necropsy were utilized To each of these representative groups new strains have been added, until now at the fifth series of injections each group consists of ten different strains of the micrococcus

Small desensitizing doses are regularly employed during the first injection of each series, and after a lapse of two hours the full dose is given, the danger thus being avoided of any anaphylactic reaction and sudden death of the animals Autolysates of the coccus were prepared by suspending cultures in physiologic sodium chlorid solution and incubating for twenty-four hours These autolysates were alternated with the living organisms in the serial injections The maximum dosage given to date consisted of 4 c c or two agar slants from the pooled growth of twenty different strains of the organism Those strains of the coccus which are not agglutinated in varying dilutions of the immune serum have been incorporated in the groups used for serial immunization, thus producing a polyvalent potent antiserum



Flaccid paralysis of the left foreleg of a young lamb undergoing immunization complete recovery twelve hours after intraspinal injection of 1 c c immune serum

The progress of antibody formation in the sheep serums was studied by agglutination, complement fixation and more recently by animal protective experiments A steady rise in the antibody content of the serums has been noted following each serial injection Seven days after the fourth serial injections, agglutination was complete at 1 5,000 dilution of the serum, and complement fixation was complete at 1 200 Thus far, as might be expected, it has been quite definitely proved that the organism of poliomyelitis stimulates the formation of antibodies in the blood stream of animals undergoing the process of immunization

VIRULENCE OF THE MICRO-ORGANISM OF POLIOMYELITIS

In studying the virulence of the organism, young rabbits from four to eight weeks of age and of approximately equal weight and size were selected in groups of threes and inoculated intravenously with decreasing doses of various strains of the coccus obtained both from brains and human poliomyelitic spinal fluids Later it was found more satisfactory to inoculate white mice intraperitoneally in series These animals are quite susceptible to the germ, and rapidly develop a fatal septicemia One-tenth c c of Strain Leitz caused the death of white mice in fourteen hours The amount of cultures required to produce paralysis or death in rabbits is relatively large Recent isolated cultures of the coccus are naturally more virulent than strains incubated for varying periods of time It should be admitted that certain strains exhibit but slight pathogenicity, even when recently isolated

ANIMAL PROTECTIVE EXPERIMENTS

Table 1 indicates that the polyvalent immune serum possesses a certain limited degree of protective value for white mice Two-tenths c c of the serum protected against ten minimum lethal doses of Strain Leitz Normal serum, however, and even sterile bouillon in 1 c c amounts exhibits some definite degree of protective value The conditions of this experiment are perhaps rather severe since ten minimum lethal doses of Strain Leitz were employed—a strain recently isolated in a fatal human case and not as yet incorporated in the lots employed for the immunization of the animals

Table 2 indicates the protective value of immune serum as compared with normal serum and bouillon when young rabbits are utilized The strain Anna employed in this experiment was recently isolated from human poliomyelitic spinal fluid One-tenth c c of the immune serum protected a 343 gm rabbit against one minimal lethal dose of Strain Anna It is evident from this table that normal serum and even bouillon were able to delay the course of the infection in rabbits, but apparently could not protect against either paralysis or an ultimate fatal termination of the infection

After it had been determined that immune serum possessed certain properties not present in normal serums a study was undertaken to determine the mechanism of the protective action White mice were injected intraperitoneally with varying dilutions of immune serum and constant quantities of the organisms At the end of thirty minutes and again at the expiration of one hour, a few drops of the peritoneal exudate were aspirated from the peritoneal cavity, and stained specimens were examined microscopically It was determined that immune serum in vivo causes a rapid exudation of cells into the peritoneal cavity, chiefly polymorphonuclear leukocytes and smaller numbers of mononuclear lymphocytes At the end of an hour most of the bacteria are readily visible within the leukocytes The few remaining extracellular organisms appear clumped together, and many are markedly swollen to several times their normal size Others have apparently undergone complete disintegration Pfeiffer's phenomenon was complete, or nearly so, at the expiration of one hour with the higher concentrations of the immune serum

In an attempt to determine whether or not the coccus of poliomyelitis produces toxins, eight day broth cultures were passed through a Berkefeld filter, and varying amounts of the filtrate were injected into the peritoneal cavity of mice Relatively large amounts of the filtrate were required to produce toxic effects or death

PROTECTIVE EXPERIMENTS IN MONKEYS

For my next experiments I utilized monkeys, since it is generally admitted that poliomyelitis can be experimentally produced in these animals Furthermore, the histopathologic changes in the monkey closely simulate the disease as we are familiar with it in man Accordingly, three healthy monkeys were selected, and after the lethal dose of the organism for the monkey had previously been determined, the first animal was inoculated intraspinally with 1 c c of Strain Leitz The second animal received a similar dosage of the same culture plus 1 c c of normal sheep serum The third monkey received an intraspinal injection of 1 c c of Strain Leitz plus 1 c c of polyvalent immune serum The results follow

TABLE 1—ANTI-INFECTIOUS POWER OF POLYVALENT SERUM *

Strain Leitz	1 C c Pooled Normal Sheep Serum	1 C c Sterile Bouillon	0 1 C c Immune Serum	0 2 C c Immune Serum	0 3 C c Immune Serum	0 4 C c Immune Serum
10 minimum lethal doses	Protection in 2	Protection in 1	Protection in 3	Protection in 4	Protection in 4	Protection in 4

* Illustrating the protective value of immune serum when white mice are inoculated simultaneously with serum and cultures 0 2 c c of the polyvalent antiserum protected against 10 minimum lethal doses of Strain Leitz

Experiment 1 (Case 10) —Dec 8, 1916, at noon, a large *Macacus rhesus* monkey was etherized, and the lower lumbar region shaved and sterilized Lumbar puncture was performed, and 1 c c of clear spinal fluid withdrawn Intraspinal injection was given of 1 c c of a mixed brain and spinal fluid culture of Strain Leitz plus 1 c c of normal sheep serum At 4 p m the animal had recovered from the anesthetic and was quiet in the cage December 8, at 9 p m, the animal was sick, and not attentive to surroundings December 9, at 10 a m, the monkey was acutely ill It lay prostate in the cage, could not sit up, and fell over when lifted upright There was marked weakness of the right front arm with definite wrist drop Lumbar puncture was performed, and 1 c c of clear spinal fluid withdrawn Stained smear of the sedimented spinal fluid revealed many polymorphonuclear leukocytes Many gram-positive diplococci were scattered uniformly throughout the field, chiefly extracellular Cell count revealed 920 per cubic millimeter

One c c of immune serum was injected very slowly intraspinally December 10, at 10 a m, the animal exhibited a complete flaccid paralysis of both arms and a marked weakness of the hind legs Lumbar puncture was performed, and only a few drops of clear spinal fluid obtained Stained smears revealed marked agglutination of the organisms with swelling and dissolution of many of the bacterial bodies and vacuolization of the leukocytes There were many intracellular organisms One platinum loopful of the spinal fluid was inoculated into each of a series of agar tubes, and blood agar plates were made A similar procedure was carried out with the spinal fluid before the administration of immune serum At the end of twenty-four hours' incubation, the average number of colonies per plate before injection of the immune serum was eighty-four Twenty-four hours after the intraspinal injection of the immune serum, only twenty-four colonies were counted per plate This was interpreted as a definite antibactericidal action of the immune serum in vivo

December 10, the monkey died in a convulsion, despite having received another injection of the antiserum

Necropsy—There was marked hyperemia of the pia-arachnoid vessels over the cerebral cortex of the brain The brain tissue was edematous There was no visible exudate anywhere over the brain or spinal cord The gray matter of the cord was hyperemic There were no visible hemorrhages in the leptomeninges

Microscopically, there was marked interstitial infiltration of lymphocytes in sections of both brain and cord There was hyperemia of the capillaries in cross section There was definite degeneration of the motor ganglion cells Neurophagocytosis was visible in the cord and also in the intervertebral ganglia

On bacteriologic examination, a pure culture of the original gram-positive coccus was obtained in cultures from the cord, brain, spinal fluid and heart's blood

An analysis of this case shows, first, that normal sheep serum afforded little if any protection against the infection Twenty-four hours after the inoculation, and at a time when the course of the infection was undoubtedly decided, immune serum exhibited certain limited bacteriolytic properties, but could not save the animal's life

Experiment 2 (Case 12) —Dec 8, 1916, at 10 a m, a large *Macacus rhesus* monkey was etherized, and 1 c c of Strain Leitz slowly injected intraspinally after the previous withdrawal of 0 5 c c of clear spinal fluid December 9, at 9 a m, the animal lay prostrate in the cage, and was very weak and tremulous He was unable to support himself in an upright position Lumbar puncture was done, and a very few drops of clear fluid obtained Stained smears revealed many small diplococci, sharply staining, and evenly distributed throughout the field Bacteria were chiefly extracellular There were many polymorphonuclear leukocytes and smaller numbers of lymphocytes One c c of immune serum was injected intraspinally At 10 p m the animal was resting quietly He refused food Rectal temperature was 38 C (100 4 F)

December 10, the monkey was active and bright in his cage Lumbar puncture was done, and smears revealed only a very few swollen diplococci, chiefly intracellular Cell count revealed 382 cells per cubic centimeter December 18, the animal remained well No paralysis was present

In this case we feel that the immune serum was able to prevent a fatal course of the disease, and apparently arrested the infection a considerable period of time after the inoculation of the bacteria

TABLE 2—PROTECTIVE VALUE OF IMMUNE SERUM IN YOUNG RABBITS *

Weight of Rabbit, Gm	Amount of Culture, C c	Protective Substance	Result
314	0 2	None	All dead within 48 hours
815	0 4		
822	0 6		
		Immune Serum	
343	0 2	0 1 c c	All survived
350	0 4	0 2 c c	
356	0 6	0 3 c c.	
		Normal Serum	
270	0 2	0 2 c c	Died after 9 days
275	0 4	0 4 c c	Died after 4 days
286	0 6	0 6 c c	Died after 3 days
		Bouillon	
318	0 2	0 2 c c	Survived
320	0 4	0 4 c c.	Flaccid paralysis Death in 6 days
330	0 6	0 6 c c	Died after 5 days

* Illustrating the protective value of immune serum as compared with normal sheep serum and sterile bouillon Simultaneous intravenous injection of serum and cultures after previous incubation for thirty minutes

Experiment 3 (Case 14) —Dec 8, 1916, at 2 p m, a small ring-tailed monkey was inoculated intraspinally with 1 c c of Strain Leitz plus 1 c c of immune serum after the previous withdrawal of clear spinal fluid Serum and organisms were incubated together for thirty minutes previous to inoculation into the monkey

December 9, at 10 a m, the animal raced and climbed about the cage apparently little worse for the infection December 18, the monkey remained well

In this experiment the conditions were not entirely analogous to those of the former cases because of the incubation of the serum and culture previous to inoculation The animal utilized was also of a different species From the foregoing series of experiments, however, it would seem fair to conclude that immune serum possesses the power to protect monkeys against an otherwise fatal result

During the course of immunization of the sheep, one of the lambs which had received but two series of injections — one intraperitoneally and the second intravenously — developed a complete flaccid paralysis of one front leg The limb was carefully examined to exclude any possible trauma A marked flaccid paralysis was present, and the animal limped along on the other three legs, dragging along the paralyzed extremity in a flail-like manner At no time during a careful observation of ten hours did the animal bear any weight on the paralyzed limb Ten hours after the onset lumbar puncture was performed, and 1 c c of clear spinal fluid was withdrawn A twenty-four hour culture yielded a growth of the gram-positive coccus of poliomyelitis One c c of immune serum was injected intraspinally The following morning the animal had regained complete use of the paralyzed leg and has remained well since

The final test of the value of any antiserum is its therapeutic efficiency in human infections I do not wish to apply, at this time, the results of animal experiments to man Suffice it to say that we have under treatment at the present time a child afflicted with the cerebral type of poliomyelitis The gram-positive coccus has been isolated on several occasions from the spinal fluid by the physician in charge of the case This patient has received several intraspinal injections of immune serum after the serum had been passed through a Berkefeld filter and tested for sterility by repeated cultural experiments Thus far it has been possible to sterilize the cerebrospinal fluid and to bring about a certain definite improvement in the clinical symptoms of the patient The details of this case will form the subject of a separate communication From the evidence at hand it would seem that poliomyelitis is in many cases — probably always in the acute fulminating types of the disease — at first a general bacteremia with the rapid localization of the microorganisms to the central nervous system If this ultimately proves to be true, it would seem fair to conclude that immune serum may be of great value in the treatment of this disease

SUMMARY

1 By the process of animal immunization with the organisms regularly isolated from the spinal fluids and the central nervous system of human poliomyelitic patients, an antiserum can be produced Its therapeutic limitations are as yet unknown

2 Antiserum prepared in this manner contains agglutinins, opsonins and complement fixation bodies, as well as exhibiting certain antibactericidal properties

3 It would seem fair to conclude that with potent polyvalent antiserum prepared in this manner, some definite therapeutic value might be anticipated in human cases of the disease

GENERAL HEALTH CONDITIONS IN BELGIUM

AFTER TWO YEARS OF RELIEF WORK BY THE COMMISSION FOR RELIEF IN BELGIUM

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At the request of the Commission for Relief in Belgium, I spent May, June and July in that part of Belgium occupied by the Germans, in the examination of present health conditions of the population, with special regard to the welfare of the children In this investigation I had the unremitting aid and counsel of the Belgian physicians and surgeons The liberty of movement which I enjoyed, as a member of the American commission, enabled me to perform a broad survey of conditions, which, under present military restrictions, is not possible for the very able Belgian specialists themselves to undertake It is difficult to generalize on the health of the whole population of the country even in normal times, when the aid of every branch of mortality and morbidity statistics can be brought to bear on the investigation, and therefore any generalization which I make in regard to Belgium, in the condition of stagnation in civic functions which exists today, is even more difficult I had access to many local statistics, hospital reports and individual private statements and information which rendered it possible to reach some conclusions which I believe are not only of value to the relief work, but also of interest to friends of the population

Broadly viewed, the objective of the inquiry was to determine what the health and nutrition of the population were as a result of the relief which has been given, what changes might be desirable in the character and manner of feeding, and if any other measures for the general health could be instituted

In a general way, conditions of health in normal times vary greatly in all countries between different economic and social classes The present economic and political situation in Belgium sharply accentuates these class differences, and therefore points to a discussion of the situation class by class From this point of view we may divide the population into the well-to-do or so-called upper classes, agricultural classes, and industrial or lower commercial classes

Well-To-Do Classes—These classes in Belgium, as in any other country, are the last to suffer in any food emergency, and may therefore be dismissed at once as being today in as good physical condition as they were before the war Certainly there is no particular increase of illness among these classes, and as there are always native provisions to be bought at a certain price in every famine, they do not suffer from malnutrition The enforced economy and temperance of even these classes has probably had beneficial results from a health point of view Furthermore, the almost universal response to the duty imposed on this class to care for the less fortunate has given stimulation and occupation, which has possibly had beneficial results and has, at least to some extent, neutralized any damage which might occur from overanxiety

The Agricultural Classes—The agricultural communities throughout Belgium may also be said to be in a very good physical state, indeed, so far as one can judge, their material condition has improved steadily since the arrival of the 1915 harvest Having first access to the produce of the land, it is obvious that they do not deprive themselves or their families of nourishment, and the high prices which they receive for their surplus produce have increased their resources, so that they will undoubtedly be in a better condition after the war than they were before

These two classes probably embrace about 35 per cent of the entire population of the occupied territory of Belgium

Industrial and Minor Commercial Classes—When one turns to the industrial communities in the large cities, which have a greater percentage of the population dependent on the paralyzed industries and commerce of the country for their livelihood, there exists a situation in which the general health is open to more doubt and where, in any event, it is maintained only by extensive organization of relief and protective measures In a general way, an average of 9,000,000 pounds of fat and 160,000,000 pounds of cereals are monthly imported from abroad by the relief commission and delivered mainly to these classes, and with this supply, together with such supplementary native supplies as can be procured, their nutrition must proceed As this class must embrace about 5,000,000 people, it is obvious that their food supply is very close to the actual necessities of nutrition It is chiefly with regard to the efficiency of this supply, therefore, and the results on the nutrition of the population for nearly two years that this inquiry has been directed

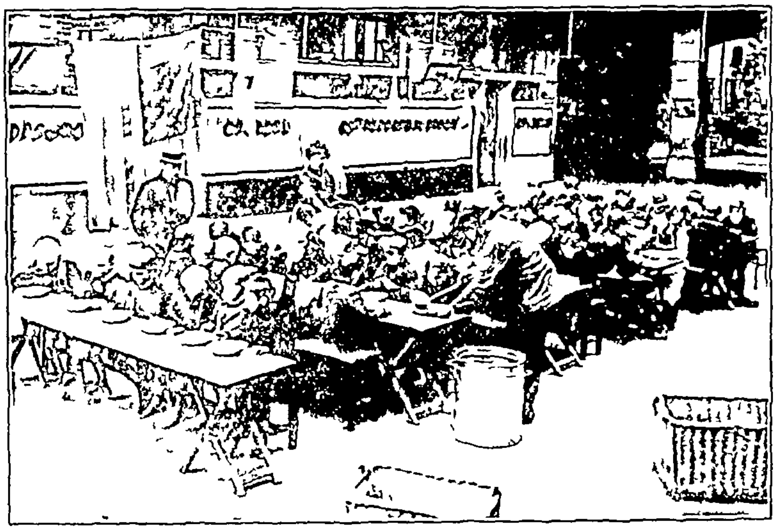

Fig 1—Type of school lunch which the Commission for Relief in Belgium is instituting throughout the country as a result of the recommendations in this report

It must be stated at once that, even with these supplies, the population has existed on the narrowest margin of dietary necessaries, and that the very careful balancing of the protein, fat and carbohydrate values of this minimum ration must, as in the past, continue to be a matter of concern The constantly changing situation as to local meat and milk supplies, by seasonal changes and gradual depletion of stock, must be watched and met, for while the general condition of this class, with the exception of the increase in tuberculosis, is not acute, certain definite situations are developing which must be reinforced or serious results will ensue It may be said at once that the increase in tuberculosis appears to me to be mainly a factor of nutrition, and if conditions were now to return to normal, the unaffected adults would, on liberal nourishment, probably return to their former health conditions within two or three months This, of course, is not true of those who have become affected with tuberculosis, nor is it so true of the adolescent children especially, who are probably suffering more than any other single group in this class, although the radical measures now adopted of separate and extra feeding for the adolescent children in the schools may stem this deterioration I am happy to say that the great devotion and stimulation of relief work for the infants and children of Belgium has raised their condition on the whole to rather better than normal Before a summary of the specific conditions of each of the age divisions of this class is given, it is desirable to discuss the tuberculosis situation as this bears on the entire population

TUBERCULOSIS SITUATION

That the undernutrition of this class especially is mainly responsible for the fact that tuberculosis is increasing rapidly will be easily realized when one considers that the average consumption of fat lies somewhere between 20 and 30 gm per day per individual This, of course, is far too low, and especially so for the adolescent years The lack in meat, both from the question of supply and on account of the high prices, makes it almost impossible for this class to obtain any animal protein in this way The growing lack in the milk supply is another important factor in this nutritional problem and during the coming winter, when there is a diminution in the native supply of vegetables and fruit, which, to a certain extent, this class is able to procure in summer, the ration will be considerably lower than it was during that season, and unless something can be introduced especially for the tuberculous of this class the whole tuberculosis situation will undoubtedly progress more rapidly than it has in the past As I shall show from the hospital reports and statistics many cases of tuberculosis which were supposed to be cured are reappearing From the fact that the sanatoriums and hospitals are all crowded, a continually increasing number of foci for the distribution of tuberculosis are rapidly forming and, under the present military conditions, it is difficult to carry on any educational campaign or any of the ordinary preventive sanitary measures against such a widespread increase in this disease

The staff of every hospital and dispensary which I visited commented on the marked increase in the number of patients who are attending their clinics The increase in the tuberculosis clinics was perhaps most marked of all, being in some cases over 100 per cent more than they were before the war Every tuberculosis sanatorium in Belgium is crowded, and the waiting lists of all the sanatoriums are larger and the cases waiting more acute than they were before the war The following statements from various hospitals indicate the same conditions

Dr Verhoogen, the chief of the medical service of St Jean Hospital Brussels, states that there has been a considerable increase in the number of patients with tuberculosis coming to his general medical clinic He finds that persons with old arrested cases of tuberculosis are returning in large numbers — cases which he had considered cured for a period of more than five years — and that their relapses are of a rapid and grave character He finds that there is a more acute involvement of the lungs, there are many more cases of glandular tuberculosis and tuberculosis of the peritoneum than formerly, and he is especially struck by the increase in cases of tuberculous meningitis, probably the most fatal and fulminating type of tuberculosis that exists He states the significant fact that his wards, which normally have ninety-eight beds, have had to be enlarged to 106, and that whereas during the summer he usually has had very few patients, in June and July, 1916, he had all his beds filled, and 35 per cent of the cases were active tuberculosis, a higher percentage of tuberculosis than he has seen before in his wards

In the St Pierre Hospital in Brussels, Dr Naewelaers, chief of the children's service, states that for the year 1912 he had only fifty-three patients with active tuberculosis in his infant ward, and in 1915 he had 125, but that in the first five months of 1916 he has had fifty-five, which, for the year 1916, would make 133 cases, and they have been more severe than formerly The surgeons in all the childrens hospitals state that persons with operative cases are much slower in recovering, and that open wounds in many cases refuse to close

Fig 2 —Canteen for debilitated children showing Dr and Mme Lathoir This is the largest canteen for debilitated children in Belgium Last summer 1 500 children were being fed daily

The chief surgeon of the throat clinic of St Pierre Hospital in Brussels states that the increase of tuberculous conditions of the throat, which is one of the rarer forms of tuberculosis, has been most marked He gives the following figures for his clinic In 1912, 1 5 per cent of his patients had tuberculosis of the throat, in 1913, 1 per cent , in 1914, 1 5 per cent , in 1915, 2 2 per cent , and for the first five months in 1916, 4 per cent , making an increase of 150 per cent between 1914 and 1916

The chief surgeon of the children's clinic of one of the largest hospitals in Brussels reports the following figures of increase in tuberculosis During the years 1909 to 1913 there was an average of 3 34 per cent of his patients who had tuberculosis , in 1914, 5 9 per cent had tuberculosis, in 1915, 5 4 per cent , and the percentage for the first five months of 1916 was 12 2 per cent

Dr Tieren, president of the Antwerp Provincial section of the Belgian League Against Tuberculosis, states that since 1913 the number of new patients with tuberculosis who came to the Institute Van den Nest increased two and one third times during the first four months of 1916, as compared with the same months of 1915 He states that not only have the cases of tuberculosis become more frequent, but that they are also more malignant , cures are much harder to obtain, and old cases, apparently cured for five years or longer, are reappearing in large numbers

Dr Wysen, head of the hygienic service of Antwerp, gives the following figures to show the number of deaths from tuberculosis (the percentages are expressed on the total number of deaths in Antwerp, not counting deaths in the floating population) For the first seventeen weeks of each year the mortality from tuberculosis has been as follows 1909, 8 per cent , 1910, 8 3 per cent , 1911, 8 6 per cent , 1912, 8 6 per cent 1913, 7 1 per cent , 1914, 9 per cent , 1915, 9 5 per cent , and 1916, 13 2 per cent

In Namur also the mortality from tuberculosis has increased, the number of deaths from pulmonary tuberculosis and tuberculous meningitis for the year 1915 was thirty-eight, while for the first half of 1916 it had already reached thirty-four In the Agglomeration of Brussels the following figures show the increase in mortality from pulmonary tuberculosis In 1913 there were 502 deaths from pulmonary tuberculosis in the Agglomeration of Brussels during the first semester , for the same period in 1914 there were 521, for 1915, 506, and for the first semester of 1916, 662

Dr Lorent, physician for the poor in one of the large poor sections of Brussels, states that since the beginning of the war and more especially since the beginning of the year 1916, cases of tuberculosis have become more frequent and have taken a more rapid and serious course The physicians from one of the large dispensaries in Antwerp state that the greater part of the adults who visit the dispensary for the first time declare that their weights have diminished, and they state, the average diminution to be over 5 kg , or about 10 to 11 pounds Among tuberculous patients whom they are treating and to whom they have been giving a supplementary diet, they note that out of ninety-five tuberculous patients receiving the supplementary meals, fourteen gained from 0 5 to 3 kg , twenty-three kept their previous weight, and fifty-eight lost from 1 to 9 kg during an observation period of one month During the same period, of eighteen nontuberculous patients who were under observation but who did not receive a supplementary diet, none increased in weight, five remained stationary and thirteen lost from 1 to 7 kg , that is, from 2½ to 15 or 16 pounds The same dispensary gives the following figures for the attendance at their clinic For the first three months of 1915 they had an average of 158 visits a month, and for the first three months of 1916 an average of 589 visits a month The actual cases of tuberculosis had more than doubled during this period

Dr Gengou, secretary of the Antituberculosis Society of Belgium, states in a report which he has drawn up, based on a questionnaire sent to all the antituberculosis societies in Belgium, that the information obtained is unanimously to the effect that the spread of tuberculosis has progressed among the poorer classes, and that among the children of these classes the surgical types of tuberculosis have increased very markedly, for instance, from Verviers, Dr Gustin states that there is a particular increase in tuberculosis among the working classes in that region He is of the opinion that this increase is due both to the present conditions which have been created throughout the country and to the fact that the sanatoriums for tuberculosis are all filled, so that acute cases not isolated are spreading the disease rapidly At Liege, Dr Malvoz points out that the increase in mortality from tuberculosis there shows a change for the years 1913, 1914 and 1915 of from 164 to 170 to 179, and for the first trimester of the years 1915-1916, from 53 to 64

Among children, Dr Gengou finds from his questionnaire that the unanimous opinion of physicians throughout Belgium is that tuberculous adenitis has increased from five to tenfold Some go much further in their figures, as, for example, Dr Mine of Lockern, who states that none of the children of the working and middle classes in his community have escaped glandular congestion This does not necessarily mean tuberculosis in an active form, but certainly indicates a lower resistance and a field ready for tuberculous infection

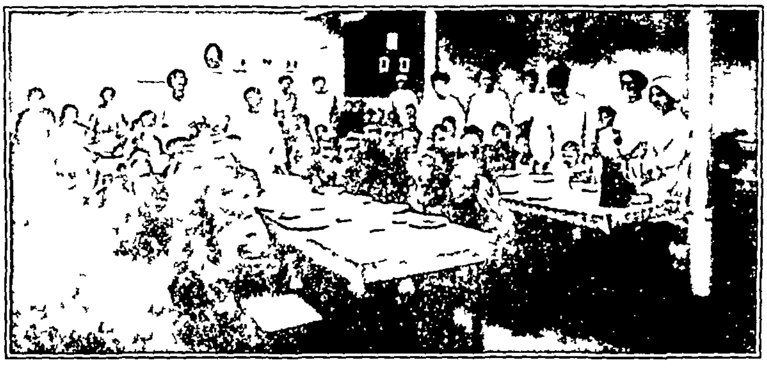

Fig 3—Canteen for debilitated children located in a cellar in Brussels

Dr de Moor, chief physician of the public schools in Brussels, gives the following figures for one of the public schools in Brussels

Out of 485 boys between 6 and 14 years of age, 305, or 63 per cent, have developed cervical glands, and 190 of this number, or 40 per cent of the total number, have developed considerably larger glands, 1 65 per cent having glands which suppurate In another large school, 482 children out of 683, or 70 per cent, have developed cervical glands, and 276 of these, or 40 per cent, have quite large glands, while 1 per cent have glands which suppurated

These conditions are especially true of the large centers, such as Brussels, Antwerp, Ghent, Liege, Mons and Charleroi It is to meet this situation in the schools that it has been proposed, in a report which I made to the relief commission, to extend school lunches This is especially important for adolescent children in the upper form schools The school population of Belgium for the lower form schools is approximately 885,000 children, and during the last semester they have been given a supplementary school lunch provided by the commission It was determined, if it should be possible to get the necessary imports, to extend these school lunches to the upper form children from the beginning of the next semester, October 1 This would probably include about 1,500,000 children in Belgium, or approximately the total needy schoolchildren population, and from 500,000 to 750,000 children in the North of France It is especially important for the better development of the children and for the protection of the pretuberculous and tuberculous individuals who must remain at home that there should be an increased diet, with special measures to overcome the present deficiencies in fat

As I have already stated, the tuberculosis sanatoriums and hospitals are all filled and have large waiting lists Many of the sanatoriums for tuberculosis are now finding it difficult to obtain a sufficient supply of milk for their patients The reduction amounts to as much as 50 per cent in some cases With the increased necessity for giving these patients supplementary diet, together with the patients who must remain at home and should also have additional supplies of milk and fat, the problem of special imports for the sick, especially the tuberculous, is a very important one

The tuberculosis situation demands increased activity, but under present conditions it is very difficult to carry on an active antituberculosis campaign There should be, however, an increased facility for the supplementary feeding of tuberculous patients New dispensaries should be opened in the large centers where they do not exist at present, and from these centers, with special visiting nurses, a considerable amount of preventive work can be carried on It is especially important to reach homes in which there are patients with active cases of tuberculosis who at present cannot enter tuberculosis sanatoriums Special supplementary diets should be furnished these homes, and where possible provision should be made for sending children from them to the country or to temporarily improvised sanatoriums

In connection with the deficiency in fat and animal protein, the lack of one of the most important food supplies should be noted Already throughout Belgium the milk supply is not sufficient for the needs of the children and the sick, and this is especially true of the larger cities Milk, as at present sold, is not only very expensive, but it is also of poor quality, being diluted or skimmed The commission is already taking active measures to obtain special herds of cows to supply a certain amount of fresh milk to children's canteens or hospitals, but the natural supply can nowhere meet the demand, and during the coming winter the present supply will be even smaller than it is, hence definite and active measures should be taken for supplying some good milk products, such as condensed milk or milk powder, for the children and sick of Belgium

GENERAL ADULT POPULATION

That the condition of the adults of these classes is being somewhat disturbed, although not severely damaged, is evidenced by such facts as these It is the current opinion of employers and those competent to judge that the laboring man of the working classes in the cities and industrial centers is not able to do the amount of work he was formerly capable of doing His energy and power of production are considerably less, and he becomes fatigued much more easily than usual Reports from physicians who care for these classes note that there has been marked loss of weight, even among those who are not sick, since 1914, they estimate that about 80 per cent of the population have lost weight and that the average loss is from 2 to 3 kg, that is, from 4½ to 7 pounds This they attribute to insufficient nutrition, especially to the low quantity of fat and animal proteins which they are receiving, to mental worry and to the epidemic of grip which was very extensive during last winter and spring

Likewise, among schoolchildren, one of the reports from a large public school for boys shows that out of 773 boys, for the year 1914-1915, 75 per cent increased in weight, 15 per cent diminished, and 10 per cent remained stationary In the same school during the year 1915-1916, out of 607 boys, 68 per cent gained weight, 25 per cent diminished, and 7 per cent remained stationary

DIMINUTION IN MATERNAL NURSING

Another keen index of the subnormal condition of the adults of these special classes may be found in the records of the maternity hospitals frequented by the wives of working men The reports from maternity hospitals at Antwerp, Brussels and Liege all show that the weights of the babies born at the present time are less than the average of infants before the war For instance, Dr Dauve of Antwerp, chief of the maternity hospital of Ste Anne, states that the new-born are generally debilitated and have the appearance of prematurely born infants whose weight and length are under average, they weigh on an average from 2,000 to 2,500 gm and measure 47 cm (19 inches) (The average weight of a new-born infant should be between 3,000 and 3,500 gm and the average length 20 inches) The lactation of the mothers leaves much to be desired, and the gain of the new-born, which should be 180 gm a week on an average, is now only 50 gm In several maternity hospitals, the incubator rooms, containing from four to twelve incubators, were always found filled, and the statement was made by the chiefs of the services that before the war there were rarely more than one or two underweight or premature infants in these incubators at any one time, and often there would be none for several months, whereas, during the past year these incubators have never been empty At the St Pierre Hospital, Brussels, many of the underweight infants have to be kept in improvised incubators

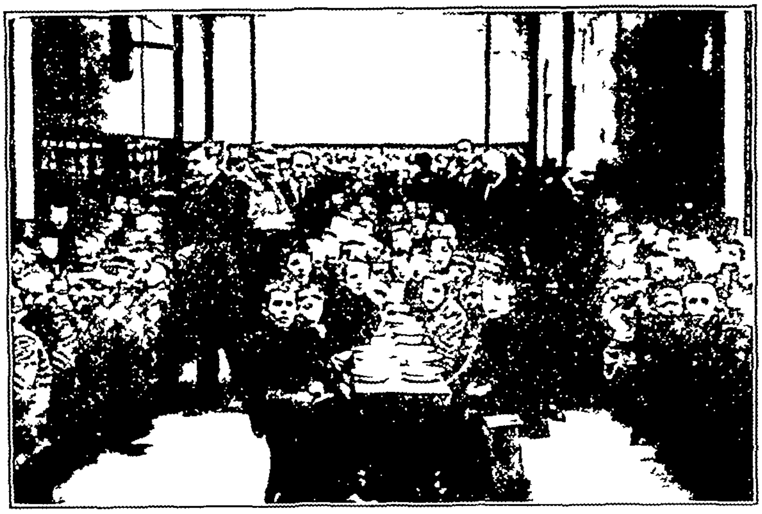

Fig 4—School lunch of the type being inaugurated by the commission throughout Belgium as recommended in this report

Another most significant fact is derived from the maternal canteens for nursing mothers At the beginning of the war the maternal canteens found that the mothers could nurse their infants for a period of nine months, but now, even with supplementary diets in the form of very substantial daily meals, they are barely able to nurse them for seven months, and this in the face of the fact that during the past year expectant mothers have been receiving meals for a period of two or three months before the arrival of the child These facts undoubtedly indicate a lower general health and vitality of the mothers of these classes

DIMINUTION IN BIRTH RATE

As in all warring countries, Belgium has suffered a great diminution in the birth rate This is so significant that it calls for special attention Compared with the average birth rate of the first semester of the five year period 1909-1913, the birth rate has fallen in 1916 in the Agglomeration of Brussels, 48 per cent, in Antwerp, 41 per cent, in Louvain, 41 per cent, in Heverle, 41 per cent, in Namur, 42 per cent, in Mons, 36 per cent, and in Liege, 41 per cent Such are the alarming decreases in all parts of Belgium that some explanation must be sought Probably the lower vitality and mental anxiety have a great deal to do with this lower birth rate Certainly the depopulation of men from Belgium is not in such a proportionate rate as in the other warring countries and not in such proportion as is the reduction in the birth rate However, though there is no general mobilization, the absence of thousands of husbands from the working classes must have something to do with the reduction in the birth rate, further, the lower nutrition in these classes and the fear of not being able to provide for their offspring must be strong factors toward a voluntary reduction

INFANTS AND CHILDREN

I have already covered the condition of children fairly completely in the discussion of tuberculosis There are certain other facts, however, that are of considerable significance Rickets, which is entirely a nutritional condition, has increased very markedly, as is shown from the following figures, derived from one of the large children's clinics in Brussels In the period 1909 to 1913, 4 73 per cent of the children who attended the clinic had rickets, in 1914, 8 per cent, in 1915, 11 4 per cent, and in 1916, 21 3 per cent The diminution in the weight of schoolchildren has already been mentioned

Not every aspect of the health conditions of the children in Belgium, however, is as gloomy as these facts would indicate Infant mortality has fallen since the beginning of the war, and deserves special comment (By infant mortality is meant the deaths of children under 1 year of age on the basis of 1,000 births) In the Agglomeration of Brussels, for the first trimester of 1904 to 1908, there were 124 deaths of infants, on an average, from 0 to 1 year of age for every thousand births, for the first semester of 1916 the infant mortality rate on the same basis was 94, or a reduction of 19 per cent In Namur the infant mortality has dropped from 150, for the period 1911 to 1913, to 84 for the first semester of 1916 In Namur, however, the deaths from 1 to 5 years are the same for the first half of 1916 as they were for the whole of 1915 In Antwerp the infant mortality has dropped 8 per cent, while in Mons, one of the largest industrial centers, infant mortality has increased 56 per cent

In 1915 the deaths from diarrhea in Liege, of children under 2 years of age, were, for the first semester, forty-three, while for the same period of 1916 they were twenty-three, a diminution of 47 per cent In Antwerp the reduction in cases of diarrhea is also marked During the period from 1911 to 1913 there was an average death rate of children under 2 years of age of 749, while during the year 1915, there were only 231 deaths from this cause In the Agglomeration of Brussels we note the same decrease in diarrheal conditions In 1913, during the first semester, there were 219 deaths from diarrhea, in 1914, for the same period, 256, for 1915, 156, and for 1916, 81

PRESENT INSTITUTIONS DIRECTLY FEEDING CHILDREN

It is generally evident that infant conditions are on the whole better than normal, that class having been the object of great solicitude since the beginning of the war A great many institutions have been created during the war to care for the children The organization of the work for the children has been divided into canteens

1 Canteens for nursing and expectant mothers, which, as already stated, furnish a substantial supplementary meal There are over 13,000 nursing and expectant mothers receiving these dinners

2 Canteens, often in conjunction with maternal canteens, have been instituted for infants under 3 years of age in which there are over 52,000 infants receiving milk and cereals Both these types of canteens have undoubtedly had a great influence on the reduction of infant mortality in Belgium There is no question that today, in Belgium, more is being done for the mother and the child than was ever done before Previous to the war there were only two maternal canteens in the whole of Belgium, today there are over 329 canteens for infants These canteens, in connection with the educational work, the medical supervision which all the canteens have, and the careful regulation of the dietary, both in the canteens and, by an extensive system of visiting nurses, in the homes, have undobutedly had a marked effect on this great reduction in infant mortality This phase of the child welfare work in Belgium is one of the best examples of the efficiency and result of the extensive and carefully planned preventive measures which have been instituted throughout Belgium by the relief organization

Besides these canteens for mothers and infants, special canteens have been started to give food, supplemental to the ordinary ration, to debilitated children from 3 to 17 years of age These children are chosen from the poorer sections, after a medical examination, and receive a supplementary dinner Each canteen is under the direct supervision of a medical staff, which not only prescribes the proper dietary but also looks after special health problems A health card is made out for each patient on which the weight is entered from month to month A review of several hundreds of these cards brings out some interesting facts It is generally noted that on admission and for the first two or three months afterward, a large proportion of these debilitated children gain in weight They then reach a stationary period, which lasts for a month or two, and then either stop gaining entirely or lose slightly, so that the average amount gained for a period of a year is considerably below the average amount which children of their respective ages should gain In these canteens over 25,000 children are being fed at the present time Up to July 1, 1916, the age limit was 14 years, since July 1, however, this age limit has been increased to 17 years to make room for the thousands of debilitated, adolescent children who, during this period of rapid growth, a period which requires a larger proportional amount of nutrition than any other period of life, require a supplementary diet It is during this adolescent period that a marked increase in tuberculosis has been noted As is well known, the most fulminating types of tuberculosis are likely to appear during the adolescent period

CONCLUSIONS

It may be said that the present general health situation in Belgium is not a gloomy one, considering the circumstances The well-to-do and agricultural classes are fully up to the normal In the industrial and minor commercial classes, while there is great privation, as the result of relief organization, the adult population is in a position to quickly recover its normal condition, general solicitude for the children has resulted in an actual improvement in infant conditions to a point above the normal, and the measures now being taken to reinforce the care of adolescent children by a further meal in the schools should quickly bring this class up to a state approaching normality With the exception of the increase in tuberculosis, the population has been singularly free from epidemics or contagious diseases, for instance, typhoid fever and the children's contagious diseases have been markedly diminished and, except for the epidemic of grip, which was prevalent last winter and spring, there have been no serious epidemics since the occupation The high degree of skill of the Belgian medical profession, its devotion to the people, and the watchful eye of the army of occupation in the protection of its own interests, with the military restriction of movement of the population, have probably all contributed to this end

The general solicitude of the whole relief organization over the question of health and nutrition has been insistent since its inception, and the magnificent work which has been performed by the women of Belgium, in the care of the child, is beyond praise The maintenance of these measures, both as to nutrition and welfare, by the relief organization, is an absolute and daily necessity to the population The cessation of the commission for relief in its labors, for a single month, would unquestionably bring a physical disaster to the industrial and lower commercial classes

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Poor Milk—If poor milk as a commodity of commerce commands the same price as good milk, and is cheaper to produce, we may expect the milk supply to tend to approximate the poorest quality which health officials will allow to be sold—Hon E S Brigham, *Bulletin*, Vermont State Board of Health, Dec 1, 1916

AURAL TYPHOID CARRIERS A REPORT OF TWO CASES

A B BENNETT, M D, WASHINGTON, D C

The usual understanding or definition of typhoid carrier is a person who, though apparently well, has the bacilli of typhoid fever in the stools or urine There have not been many reports of cases in which the typhoid organism has been cultured from other discharges in persons otherwise apparently well Therefore I believe it worth while to report the following cases

CASE 1—B S N, man, white, aged 34, with negative family history, in 1898, while serving in the U S Volunteers in Porto Rico, suffered a severe attack of typhoid fever Ever since then there has been a chronic purulent discharge from the left ear with an occasional acute exacerbation When I saw him, the temperature was 100, the mastoid was tender, there was a free flow of creamy pus from the left external meatus, the inferior posterior half of the left membrana tympani was destroyed, and the patient complained of severe earache and painful mastoid, which were much worse at night

Under simple local treatment the temperature subsided and the pain and tenderness disappeared A culture was taken from the ear, and about ten organisms developed, one of which was culturally typhoid A second culture was made which showed much fewer organisms and the same typhoid organism This germ was tested in the laboratory of the U S Naval Hospital and proved to be typhoid It agglutinated in the presence of the patient's blood, and his opsonic index was zero

I thoroughly cleansed and dried out the ear, and gave the patient five doses of typhoid vaccine There was a decided improvement in his general health and the aural discharge was very slight He then left the city and I have been unable to learn anything of him since

CASE 2—M W, girl, white, single, aged 15, with negative family history, had been "born with heart trouble" At 3 years of age she had diphtheria, at 6 measles, at 7 she had the tonsils and adenoids removed, at 10 she had chickenpox, at 11 scarlatina, and at 12 what her mother told me was typhoid pneumonia, which was probably a frank pneumonia The present illness began one month prior to consulting me when she had an attack of acute purulent otitis media (left) with considerable pain and discharge The discharge continued, and on examination I found the left auditory canal filled with pus There was a perforation of the membrana tympani in the center of the anterior half, and through it projected a small polyp which bled profusely on the slightest manipulation making the use of a snare or forceps almost impossible Several applications of trichloracetic acid reduced the polyp to within the perforation, and the discharge lessened but would not cease A smear from the ear showed a great number of diphtheroid bacilli, gram-negative bacilli, a few *Micrococci catarrhales,* and staphylococci A culture from the ear developed diphtheroid and gram-negative bacilli A vaccine was made and seven doses given, increasing from 50 million to 1,000 million, which resulted in an entire cessation of discharge after the seventh dose The culture was grown and vaccine made by the National Vaccine Laboratory which reported later to me that the gram-negative bacilli proved to be typhoid bacilli

Neither of these patients was under my care very long I was unable to learn of any cases of typhoid that could be traced to contact with these persons, nor was I able to ascertain if they were carriers of typhoid in their urine or stools However, I believe that the isolation of the typhoid bacillus from the middle ear discharge of two patients is worthy of report

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The Unvaccinated—People have smallpox because they prefer it to vaccination The whole population pays for the privilege of having smallpox monopolized by the unvaccinated—*Bulletin,* Minnesota State Board of Health, December, 1916

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 2017)

FAT (LIPURIA)

A minute amount of fat (0 02 gm) is excreted daily This amount may be increased to 34 mg by eating large amounts of fat, according to Sakaguchi[55] He investigated the urinary fat output in various chronic diseases, and found no disturbance of this minute urinary excretion The fat of the urine may, however, be increased in chronic nephritis when there is fatty degeneration of the kidneys, and is probably usually increased in phosphorus poisoning

CHYLURIA

This is a rare condition in which a milky urine is due to chyle entering the urinary canals directly from the thoracic duct Such a condition is generally caused by the burrowing of parasites called filariae An unexplained chyluria has rarely occurred

CYSTINURIA

Cystin rarely appears in the urine Its appearance is due to improper metabolism in the body Cystin is an amino acid derived from protein, and is normally transformed in the body, its sulphur appearing in the urine as a sulphate Infrequently cystinuria causes deposits in the pelvis of the kidney or in the bladder This condition should be treated by a reduction of the amount of protein consumed and by the administration of alkalies Cystin may be produced by the body proteins, and an endogenous cystinuria may sometimes occur

ALBUMOSURIA

Excretion of proteoses in the urine constitutes the condition called albumosuria It may occur in suppurative conditions or processes such as that which takes place during the resolution of a serious pneumonia in which a considerable portion of lung has been involved It has occasionally been found in leukemia

BENCE-JONES PROTEIN

The abnormal protein substance termed Bence-Jones protein is probably of endogenous origin It is generally combined with anemia and does not seem to be a decided symptom of anything, but multiple myeloma or some form of bone-marrow disease The prognosis for this condition is unfavorable

UROBILINURIA

Bilirubin is converted in the intestines by bacterial action into urobilinogen and urobilin, which are absorbed by the blood and converted into bilirubin in the liver Traces are usually found in the urine When an increased amount appears in the urine, the condition is termed urobilinuria

BILIRUBINURIA

Any obstruction of the biliary ducts will cause absorption of bilirubin into the blood, resulting in jaundice, and bilirubinuria The urine becomes brown, and when shaken shows a yellow froth

If bilirubin appears in an increased amount in the urine it denotes a more or less serious liver disturbance If a small amount of this bile substance passes off in the urine it is not harmful to the kidneys, but if a large amount is excreted during an extended period of time, renal irritations, possibly accompanied by albuminuria, may occur

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[55] Sakaguchi Biochem Ztschr 1913, 48, 1

ALBUMINURIA

Albuminuria may be classed as follows

1 *A symptom of nephritis*
2 Accidental albuminuria causes
    (a) Dietary (alimentary)
    (b) Chilling of the body
    (c) Unexplained (frequently due to focal infection)
3 Incidental albuminuria causes
    (a) Cold baths
    (b) Menstruation
    (c) Athletics or other physical strain
    (d) Cardiac weakness
    (e) Irritation in some part of the urinary tract
    (f) Hypertension
    (g) Ether or other anesthesia
4 Orthostatic (lordotic, cyclic, adolescent)

The term "albuminuria" refers to the presence of serum-albumin in the urine Nucleo-albumin may be present occasionally in a patient who is in perfect health Frequently nucleo-albumin and serum-albumin are both present, particularly in acute or subacute nephritis Nucleo-albumin is rarely present in chronic nephritis The presence of this substance alone does not ordinarily mean that there is a kidney lesion Albumin in the urine is either excreted by the kidneys or comes from some part of the urinary passages If it results from some localized irritation, inflammation or hemorrhage, there are more white cells present in the urinary sediment than in ordinary albuminuria If there is hemorrhage, there are, of course, red cells A small amount of albumin is found in cystitis, and a somewhat larger amount in pyelitis The amount, however, is always small unless it comes directly from the kidney secreting substance Urine containing a small quantity of sodium chlorid or other salts may show just a trace of serum-albumin, but if sodium chlorid is added to such urine, a larger deposit will be obtained Frequently urine in which albumin has previously been found becomes free from this substance because the patient is passing a larger total amount of urine, in other words, if he has been given a diuretic or a large amount of water, albumin may not be found, while the same condition which caused the albuminuria still exists Circulatory tonics, such as digitalis, provided the blood pressure is not high, frequently, temporarily at least, may cure an albuminuria

1 The albuminuria of nephritis will be discussed later under that heading

2 Accidental albuminuria may occur from several causes It is sometimes due to exposure to cold, more frequently it is due to some dietary error, such as overloading the system with proteins, or it may be due to some alimentary disturbance Traces of albumin are often found in the urine in intestinal disturbances, particularly in chronic diarrheal conditions Albumin is often found in the urine without any assignable cause, probably owing to some focal infection Mouth and throat infections may cause serious kidney disease, mild irritations, therefore, may cause the appearance of small amounts of albumin in the urine

3 Incidental albuminuria is frequent It may be caused by cold baths or cold showers It may occur with menstruation or when menstruation is delayed It occurs frequently after severe muscle strain, as in competitive athletics

Incidental albuminuria as a symptom of an acute disease, and its appearance during the intensity of an acute infection have been proved Backache and the primary symptoms of most acute infections are probably due to kidney congestion

Cardiac weakness or insufficiency, low blood pressure, or anything which causes congestion of one or both kidneys may allow leakage of albumin On the other hand, a small trace of albumin is frequently a symptom of hypertension, and may be the forerunner of actual kidney disease

Albumin frequently appears in the urine following an operation, and is perhaps chiefly due to the anesthetic It may, however, be due to some position in which the patient is compelled to sustain himself for an extended period of time, such as the lithotomy position, or sluggishness in the circulation of the kidneys may occur from prolonged lying on the back

Renal irritations, or irritations in some part of the urinary tract, frequently cause the discharge of small amounts of albumin in the urine A floating kidney may also be the cause of this condition

When the cause of albuminuria has been determined, the preventive treatment is self-evident If it is a part of some diseased condition, it will diminish with any improvement in that condition

4 Orthostatic albuminuria (lordotic) has also been called the albuminuria of adolescence, because it is apt to occur in developing children As it occurs only when the individual is active, it was for many years supposed to be entirely due to a change in the blood pressure of the kidney vessels, and was termed orthostatic albuminuria, as in the majority of instances the albumin disappeared from the urine if the child remained in bed Occasionally the administration of cardiac tonics and vasopressor drugs improved or prevented the condition This symptom disappeared in many of the children as they grew older, the duration of the condition varying However, since Jehle published his monograph, in 1909, stating that so-called orthostatic and functional albuminuria was often due to lordosis causing passive hyperemia of the kidneys, the truth of his observations has been acknowledged by many investigators It seems probable that some inherent weakness of the kidney circulation must also be a factor, though general vasomotor disturbances and low blood pressure have not been constantly present Not every lordotic person is afflicted with albuminuria, nor is every orthostatic albuminuric lordotic However, lordosis is apparently a frequent cause of albumin in the urine in an active patient

Albuminuria due to lordosis may come from only one kidney, as has often been proved by ureteral catheterization In schoolchildren it may be the result of sitting for some time daily with the hands folded behind the back[56] Albuminuria may also be caused by a movable kidney, due to venous or passive congestion

The term "orthostatic albuminuria" should be limited to that albuminuria without casts which occurs after standing or moving about, and which disappears with a reclining position If casts and blood cells are associated with this condition, the patient may be suffering with nephritis Hence position may be the final cause of sufficient passive congestion for the excretion of albumin, casts and blood cells The necessity for complete rest, in even slight kidney congestion, is therefore obvious

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[56] Piesen Wien klin Wchnschr Jan 5 1911

Orthostatic albuminuria may be due not only to lordosis, which produces a passive congestion of otherwise normal kidneys, but also to an insufficiency of the kidney circulation, possibly congenital, with or without lordosis This condition may also be caused by kidneys of insufficient size for the individual Orthostatic albuminuria may also be caused by certain positions or labors which cause a profusion of blood to course to the kidneys, resulting in passive congestion and leakage of albumin Sometimes in rapidly growing youths the kidneys may be insufficient, just as we find hearts insufficient Later the kidneys grow to the body size

Lordotic albuminuria or albuminuria due to disturbed circulation in otherwise normal kidneys usually occurs between the ages of 10 and 15 Scoliosis may also be a factor in causing albuminuria Tall, thin children with poor circulation are most frequently affected This insufficiency of circulation is evidenced by cold hands and feet, and general weariness after exercise Functional or orthostatic albuminuria, or albuminuria occurring after hard exercise, may be due to a kidney which has imperfectly recovered from a previous inflammation This kidney may be insufficient for years and become a predisposing cause of chronic nephritis

The prognosis of this albuminuria of adolescence is generally favorable, although it usually shows a lack of kidney tone or imperfect function, and may indicate that the surrounding circulation is not perfect Hence there is danger of serious disturbance later, particularly with any added strain on the kidneys

In intermittent albuminuria, although casts may be absent, there is always the possibility of development into a condition of nephritis, consequently insurance companies look on these cases with suspicion However, patients with intermittent, lordotic or orthostatic albuminuria not infrequently recover completely and permanently

Before an albuminuria is considered a simple albumin leak, all suspicion of more serious conditions of the kidneys must be eliminated by examinations of the urine under varying conditions Casts must be absent, and there must be no cardiac hypertrophy or other symptoms which would show that the kidneys are suffering from localized or general inflammation If granular casts are found, the prognosis is not good, but may not be very bad Determination of the absence of any focal infection, tests of function, blood examinations, and, if advisable, the passage of ureteral catheters to show whether both or only one kidney is at fault will make the prognosis clear

The results of urine examined on first rising in the morning, and again in the latter part of the afternoon will quickly show whether the condition is an orthostatic albuminuria Also, tests of diet and exercise will show the limitations of the kidneys and their ability to sustain effort without leaking albumin

Temperature tests should be made as it is not unusual to find that so-called functional or orthostatic albuminuria is due to the fact that a tuberculous kidney is developing Such a condition may be discovered before pus or blood appears in the urine The localization of an albumin leak in one kidney, with some rise of temperature in the evening, should cause not only the centrifuged sedimented urine to be examined for tubercle bacilli, but also the guinea-pig test to be made

The spine should of course be examined for scoliosis and lordosis, and proper orthopedic treatment should be instituted if either of these conditions is found Also, any faulty position assumed by the child while studying in school or at home, or such as results from lying in a hammock or sleeping in a bed with too weak springs, should be corrected

Disturbed menstrual function in young girls is at times a factor in causing leakage of albumin When normal menstruation occurs spontaneously or as the result of appropriate treatment, such albuminuria ceases

That hard physical exercise may cause albumin and casts to appear in the urine is now too well known to require proof or discussion That a repetition of this condition in athletes may cause no future harm will not be so readily accepted, though Jundell and Fries,[57] after repeatedly examining the urine of 163 athletes after exercise of various kinds, concluded that the kidneys are never permanently injured They did not, however, take into consideration the more or less permanently increased blood pressure caused by such exercise It would seem only logical to believe that albuminuria caused by athletics represents kidney tire or kidney strain, making these organs more susceptible to irritation, and must be as harmful as over-indulgence in improper food, frequent diarrhea, repeated attacks of rapid heart from coffee or other cause, periods of insomnia, etc

In the treatment of such recurrent albuminuria or in the treatment of lordotic albuminuria, strenuous exercise should be forbidden, and all functions of the body should be made as perfect as possible The diet should be properly arranged, a great deal of rest taken, muscle exercises to increase the strength of the back muscles advised, anemia treated by the administration of iron, a weak heart aided by cardiac tonics, constipation relieved, plenty of fresh air prescribed, and sea bathing and cold bathing usually prohibited—every means being used to improve the general condition of the patient

Of course it should be recognized that traces of albumin may be caused by renal concretions A growing child or youth with traces of albumin in the urine, and with low blood pressure may develop pulmonary tuberculosis

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[57] Jundell and Fries Nord med Ark, 1911, 44 Internal Medicine, No 1

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION W A PUCKNER, SECRETARY

FORMIN (See N N R, 1916, p 138)

The following dosage forms have been accepted

Formin Tablets 5 grains—Each tablet contains formin 5 grains
Formin Tablets 7½ grains—Each tablet contains formin 7½ grains

VERONAL (See N N R, 1916 p 92)

The following dosage form has been accepted

Veronal Tablets 5 grains—Each tablet contains veronal 5 grains
Prepared by E Merck Darmstadt Germany (Merck and Co New York)

A Comparison—If consumption was as unpopular as the diseases of pigs or the bollworm, it would soon be eradicated—but as long as the price of humanity is so low and pork and cotton so high, we will have to do the best we may —*Bulletin* Newark (N J) Department of Health

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SATURDAY, JANUARY 6, 1917

A STUDY OF CROSSED TOLERANCE FOR DRUGS

The expression "crossed tolerance" has been employed to designate the altered susceptibility which subjects that have acquired a considerable degree of tolerance for one drug or poison may thereafter exhibit toward another potent substance In certain instances this phenomenon is well recognized A habitual drunkard, tolerant to large doses of alcohol, usually is noticeably resistant to the general anesthetics It is not difficult to understand the occurrence of crossed tolerance in the case of drugs very closely related which act in essentially similar ways on the organism, but as the mechanism of habituation and increased resistance to drugs is little understood in all but a few instances, the more extreme alleged types of crossed tolerance that have been reported have not been subjected to critical consideration To what extent, aside from a few familiar examples, functional habituation, acquired for a particular drug, may also hold for other drugs of somewhat similar action has remained to be determined

Dr H B Myers,[1] the pharmacologist of the Medical School of the University of Oregon, thus indicates some of the problems in this field The pharmacologic action of ether on the central nervous system may be considered to be similar to that of alcohol, since the two act on the same nerve cells in the same direction, and neither has a selective action not shared by the other The pharmacologic similarity, together with the close chemical relationship, would lead one to assume, even in the absence of known facts, that the toleration of alcohol and ether was mutual Similarly a crossed tolerance between chloroform and the closely related chloral hydrate might be assumed With other drugs, however, which may be grouped together because of some ultimate general effect produced, as, for example, sleep, the assumption of a cross tolerance is not so well warranted, nor are facts available to show whether such cross tolerance does occur

Myers[1] has attempted to ascertain whether crossed toleration can be established, first, between such closely related drugs as morphin and methyl and diacetyl morphin, and second, between morphin and other less related depressants of the central nervous system to which the cells become tolerant, as cannabis indica and chloral hydrate Cannabis indica represents drugs not chemically related but sharing in some of the selective actions of morphin, chloral hydrate such depressants as have neither chemical relationship nor selective actions in common

The outcome of these new experiments indicates that a marked crossed tolerance exists to codein and to heroin in dogs habituated to morphin, so far as effects on the respiratory center are concerned A slight crossed tolerance exists between codein and morphin, and between heroin and morphin in regard to their actions on the tissues governing equilibrium No evidence of crossed toleration to cannabis indica or to chloral hydrate exists in dogs tolerant to large amounts of morphin

It thus appears that a crossed tolerance may exist between closely related drugs, but that this tolerance is evidenced only on those functions in which the drugs have a common selective action The results are in harmony with the older belief in the increased resistance of chronic drunkards, in comparison with ordinary persons, to chloroform Alcohol and chloroform act on the same nerve cells in a similar way, and probably induce the same changes in the protoplasm From Myers' study we may conclude that a crossed tolerance involves only those structures on which the drugs exert effects mutually alike

COLD AIR AND PNEUMONIA IN CHILDHOOD

In a presidential address before the American Pediatric Society at Washington a few months ago, Freeman said

> In all the acute infectious diseases I think there is now a general acceptance of the advantage of fresh air, excepting perhaps in measles and scarlet fever In tuberculosis there is now no question of its advantage In pneumonia the results from this treatment have exceeded those from any other method of treatment, including specific treatment with serums and vaccines There are still many men, however, who, while allowing that fresh air is beneficial in an inflammation of the lung, doubt its efficacy in bronchitis, pharyngitis, laryngitis rhinitis and otitis The only reason why such men doubt its efficacy is because they have not sufficiently tried it I have used it in all these conditions and I believe that it is of direct benefit and that it diminishes materially the mortality[1]

Freeman remarks that the supposed production of catarrhal inflammations in adults by exposure to cold air, if it really exists, exists only on account of suggestion The persons affected have been brought up in such fear of fresh air that every infection of the upper air passages to which they succumb is attributed to it Nevertheless, several recent investigations have indicated that we cannot be entirely indifferent to the possible effects of chilling on the organism Studies of the New York State Commission on Ventilation have indicated that respiratory infections of rabbits with *Bacillus bovisepticum* (snuffles) are favored by the chilling of such animals after they have been accustomed to heat, and some of the results indicate that a change from a low to a high external temperature also predisposes to similar infection Although Chodounsky[2] obtained only negative results, the weight of recent experimental evidence favors the view that exposure of the body to cold is favorable to the incidence of acute respiratory disease, and it seems not improbable that the primary seat of this deleterious influence is in the mucous membrane of the upper air passages[3]

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[1] Myers H B Cross Tolerance Altered Susceptibility to Codein, Heroin Cannabis Indica and Chloral Hydrate in Dogs Having an Acquired Tolerance for Morphine Jour Pharmacol and Exper Therap, 1916 8, 417

[1] Freeman R G Fresh Air in Pediatric Practice Am Jour Dis Child December 1916 p 590

Considerations of the foregoing sort throw a greater burden of proof on the advocates of any extreme cold air therapy It would be unjust to the commendable advocacy of outdoor life to identify this with chilling from undue exposure Nevertheless, open air treatment always harbors possibilities of even unintentional exposure, which becomes particularly serious to those who, like infants, are least able to make known any undue discomfort produced by their environment The cold air treatment of pneumonias in childhood, endorsed by Northrup about ten years ago,[4] was given a scientific basis by the contentions of Howland and Hoobler[5] They asserted that children seriously ill with pneumonia might have a blood pressure somewhat below that expected at their age, and that the symptoms accompanying fatality in this disease were those of vasomotor failure They found that the effect of cold fresh air on patients with active pneumonia was the production of a rise in blood pressure, removal to a warm (65 F) room produced a fall in blood pressure The results were absent or much less striking in convalescents No results were obtained by placing children outdoors in warm weather They concluded, therefore, that the all important factor in the outdoor treatment was cold, and that the rise in blood pressure was brought about by a reflex stimulation of the vasomotor center through the action of the cold air on the skin They also stated that a constant and continuous increase in an abnormally low blood pressure, brought about without exhaustion or bad effects, is of the greatest value This explanation of the beneficial effects of the outdoor treatment was generally accepted

It has been pointed out recently in The Journal[6] that, contrary to the usual belief, the blood pressure and the vasoreflex are not as a rule seriously impaired in pneumonia Morse and Hassman[7] have made a special study of the effect of cold outdoor air on the blood pressure in pneumonia in childhood at the Children's Hospital in Boston From their statistics there appears to be no constant relation between the systolic pressure, the diastolic pressure or the pressure pulse and the severity of the pneumonia or the temperature of the surrounding air, as the rates of both the pulse and the respiration show a tendency to vary directly with the temperature of the surrounding air

We are apparently not justified at present in formulating conclusions as to the effect of the cold air treatment on the mortality of pneumonia in childhood Patients, however, symptomatically seem more comfortable when they are outdoors than when they are in the house At any rate, the impression of those constantly with the patients was that, in general, the children were more comfortable outdoors than in the ward, they coughed less, were quieter, had a better color, and had better appetites outdoors than indoors These were merely impressions, however, and, as Morse and Hassman admit, are of little or no scientific value

DEATHS OF PHYSICIANS IN 1916

During 1916 the deaths of 2,196 physicians in the United States and Canada were noted in The Journal On an estimate of 158,000 physicians, this is equivalent to an annual death rate of 14 08 per thousand For the fourteen previous years the mortality rates were 1915, 15 71, 1914, 14 41, 1913, 14 64, 1912, 14 13, 1911, 15 32, 1910, 16 96, 1909, 16 26, 1908, 17 39, 1907, 16 01, 1906, 17 20, 1905, 16 36, 1904, 17 14, 1903, 13 73, and 1902, 14 74 The average annual mortality for the period from 1902 to 1916, inclusive, was, therefore, 15 61 per thousand

The chief death causes in the order named were senility, heart disease, pneumonia, cerebral hemorrhage, accident, surgical operations and nephritis The age at death varied from 23 to 99, with an average of 59 years, 11 months, 5 days The general average of age at death since 1904 is 59 years, 8 months and 13 days The number of years of practice varied from 1 to 77 years, the average being 33 years, 2 months and 21 days The average for the past thirteen years is 31 years and 29 days

Causes of Death —There were 225 deaths assigned to general diseases, 261 to diseases of the nervous system, 324 to diseases of the circulatory system, 231 to diseases of the respiratory system, 129 to diseases of the digestive system, 105 to diseases of the genitourinary system, 337 to senility, 39 to suicide, 112 to accident, 15 to homicide, and 98 after surgical operations Among the principal assigned causes of death are senility, 337, heart disease, 215, pneumonia, 208, cerebral hemorrhage, 204, accident, 112, operations, 98, nephritis, 72, tuberculosis, 62, carcinoma, 49, appendicitis, 40, suicide, 39, arteriosclerosis, 36, diabetes, 29, angina pectoris, 26, septicemia, 21, uremia, 17, myocarditis, 16, homicide, 15, endocarditis, 14, gastritis and cirrhosis of the liver, each 13, influenza, anemia and cholecystitis, each 12, typhoid fever, 11, gastric ulcer, 10, general paralysis of the insane and paresis, each 9, paralysis, 8, dilatation of the heart, intestinal obstruction and peritonitis, each 7, erysipelas and meningitis, each 6, embolism and disease of the prostate, each 5, typhus fever, sarcoma, pleurisy, asthma and ptomain poisoning, each 4, diphtheria, pericarditis and bronchitis, each 3, malaria, drug addiction, neuritis, anterior poliomyelitis, mastoid disease, duodenal ulcer and dropsy, each 2, and scarlet fever, bubonic plague, yellow fever, epithelioma, Addison's disease, leukemia, alcoholism, tabes dorsalis, Hodgkin's disease, paralysis agitans, Pott's disease, paratyphoid fever, trypanosomiasis, pancreatitis and tumor of the esophagus, each 1 One physician died in prison Ten medical officers lost their lives from wounds received in the European, Asiatic and colonial war zones

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[2] Chodounsky Erkaltung und Erkaltungskrankheiten Vienna 1907

[3] Lee F S Recent Progress in Our Knowledge of the Physiological Action of Atmospheric Conditions, Science 1916 **44** 183

[4] Northrup, W P Med News 1904 **84**, 823 Chicago Med Recorder 1904 **26** 628 Med Rec New York 1905, **67**, 253 Boston Med and Surg Jour 1906 **154**, 216 The Journal A M A, Oct 13, 1906 p 1182 Med Jour, New York, 1907 **86**, 12

[5] Howland John and Hoobler B R The Effect of Cold Fresh Air on the Blood Pressure in Pneumonia of Children Am Jour Dis Child, May, 1912, p 294

[6] The Blood Pressure in Pneumonia Current Comment The Journal A M A Oct 14, 1916, p 1168, The Respiratory Mechanism in Pneumonia Dec 2 1916 p 1678

[7] Morse J L and Hassman D M The Effect of Cold Air on the Blood Pressure in Pneumonia in Childhood Am Jour Dis Child November, 1916 p 445

The causes assigned for the 112 deaths from accidents were automobile, 28, falls, 18, railway-automobile (grade crossing), 17, railway, 11, drowning, 11, firearms, 7, poisons and burns, each 5, sunstroke, starvation and exposure, and explosions, each 2, and Roentgen-ray burns, crushing and street railway, each 1 The 59 physicians who ended their lives by suicide selected the following methods firearms, 24, poison, 7, hanging, 3, cutting instruments, 2, and other means, 3 Of the 15 homicides, 13 were due to firearms, 1 to cutting instruments, and in 1 the method was not reported

Ages —Of the decedents, 62 were between the ages of 21 and 30, 194 between the ages of 31 and 40, 343 between 41 and 50, 438 between 51 and 60, 499 between 61 and 70, 386 between 71 and 80, 159 between 81 and 90, and 19 between 91 and 99 The greatest mortality occurred at the age of 64, when 68 deaths were recorded

Military Service —During the year 221 physicians died who had served in the Civil War, and of these 54 had followed the fortunes of the Confederacy, 45 had been medical officers of United States Volunteers The Medical Corps of the Army lost 8 officers, 7 had been members of the Medical Reserve Corps, and 17 had been contract or acting assistant surgeons The Navy lost 13 medical officers, the Public Health Service 10 officers, the Indian service 3 physicians, and the organized militia 45 medical officers, of whom 6 had attained the grade of surgeon general

Civil Positions —Of those who died, two had been United States senators, one a member of Congress, one, governor of a state, 6, United States consuls, 13, members of state senates, 32, members of the lower houses of legislatures, 28 had been mayors, 33, aldermen, 33 had served as justices of the peace, as clerks in the government service or in various other civil positions, 7 had been postmasters, 16, editors of medical or lay journals, 27 had also been clergymen, of whom ten were foreign missionaries, 4 had been attorneys, 92, druggists, 40, bankers, 15, medical directors of life insurance companies, 5, dentists, 1, a president of a railway company, 1, a botanist, 1, a musician, 1, a toxicologist, and 8, chemists

Association Fellowship —Of the 596 Fellows of the American Medical Association who died during 1916, seven had been members of the House of Delegates, one, Dr H L E Johnson, had been a member of the Committee on National Legislation, one, Dr Henry B Favill, was chairman of the Council on Health and Public Instruction, five, Drs Wisner E Townsend, Frank J Lutz, William L Rodman, Philip Mills Jones and H L E Johnson, had been members of the Board of Trustees, and two, Drs William L Rodman and John B Murphy, had served as President of the Association

THE REFINEMENT AND CONCENTRATION OF DIPHTHERIA ANTITOXIC SERUMS

The introduction of a practical method for the concentration and refinement of diphtheria antitoxin, devised by Gibson[1] in 1905, marked an important step in advance from a therapeutic standpoint It represented the applications of the experiences of protein chemistry to a problem which is essentially of a biochemical character It consisted in removing a globulin fraction from the serum or plasma and subjecting it to purification by precipitation, solution and dialysis The antitoxic properties of horse serum followed the globulin at every step The expression "antitoxic globulins" thus came into prominence

It had previously been maintained that the artificial concentration of antitoxin is superfluous because it is possible to immunize animals to such a high degree that any further procedure is unnecessary The production of such highly potent serums, however, is attended with much uncertainty and is sometimes exceedingly expensive With the introduction of concentration schemes, citrated plasma could be used instead of serum in the preparation of antitoxic fluids Coagulation is prevented by the citrate — the corpuscles sediment — and the yield of productive plasma is often 50 per cent greater than that of serum obtained by spontaneous clotting of blood Not only has the plan of "concentrating" antitoxin by the methods of protein fractionation permitted the satisfactory use of low grade serum or plasma which would otherwise have been of little value, but it has also established the possibility of eliminating some of the undesirable effects, for example, serum rashes, attending serum injections, by removing by-products presumably responsible for them Finally, a smaller volume of fluid is required for injection

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[1] Gibson R B The Concentration of Antitoxin for Therapeutic Use *Jour Biol Chem 1905 1906, 1, 161*

From time to time improvements have been made in the preparation of antitoxic protein fractions of the blood of immunized animals, usually based on the separation of the blood proteins in accord with the principles just discussed Urticaria has been reduced in frequency but by no means completely excluded The most recent process was planned by Heinemann[2] at the Serum Division of the Memorial Institute for Infectious Diseases, Chicago It involves a combination of well known methods of precipitation and heating protein solutions, with a persistent repetition of certain details, until the desired results are obtained The precise directions recently published, show that 2,000-unit serum may be produced from plasma testing less than 300 units The apparent stability of the new serum renders it of especial economic value, and a concentrated fluid containing from 18 to 20 per cent of active solids can readily be prepared The higher concentration attainable in comparison with earlier methods is attributed to the more successful removal of nonantitoxic blood proteins The serum disease reactions are reported to be greatly reduced by the use of this new-process antitoxin

We ought to derive a peculiar satisfaction from such reports of progress Not only does this process represent an advance of direct applicability in clinical medicine — it exemplifies the best spirit of scientific endeavor There have been no "secrets" and no veiling of the truth, no patents asked for, and no commercialization in the evolution of the essential methods for producing better antitoxin to combat diphtheria The researches have been published clearly as a gift to all who would use the findings We hear all too little about beneficent scientific philanthropy of this character

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[2] Heinemann P G The Refinement and Concentration of Antitoxins, Jour Infect Dis 1916 **19**, 433

The Medical Curriculum —With the best possible preparation the medical student finds his daily task quite as much as the strong can carry, and altogether too heavy for the weakling There has been some discussion among medical educators concerning the curriculum, some contending that it is too heavy for the average student This depends on what is meant by the "average student" If the standard set in college work is applied I am of the opinion that medicine does not want such 'average students" I am convinced that a strong student, of high average, can carry the medical work as now imposed and that the imposition of a heavy task succeeds in weeding out the unfit and is therefore desirable We do not develop muscles by lifting feather weights, nor do we strengthen brain activity without earnest effort The aim of medical education is to develop strong men, and in order to do so difficult tasks must be imposed in the training — Victor C Vaughan M D, *Science*, Dec 8 1916

Current Comment

TUMOR CHEMISTRY

From time to time attempts have been made to discover possible chemical differences between the cells of tumors and those of corresponding normal tissues A review of the literature on the subject leaves the impression that if any differences exist they are not sufficiently marked to deserve emphasis[1] Not long ago, however, analyses of malignant tumor tissue by Kocher[2] indicated that this yields a larger proportion of the familiar diamino acid derivatives of the proteins than is found in normal tissues Taken in connection with the demonstrated role of some of the diamino acids, notably lysin, in growth,[3] these facts seemed to offer a new approach to the cancer problem The high content of the diamino acids in the tumors might be looked on as in some way responsible for the abnormal rate of growth of these tissues Drummond,[4] of the Cancer Hospital Research Institute, London, has made new analyses of neoplasms which could be controlled experimentally These furnish a different interpretation to the findings just mentioned The distribution of nitrogen in a large number of the proteins of human and chicken tumors and normal tissues has been examined A higher proportion of the diamino acids generally exists in the case of the tumor proteins It has been shown that in all probability the diamino acid content of a tissue varies directly with the amount of nuclear material present The more rapidly growing and cellular tumors, therefore, show a higher percentage of these substances than do the slowly growing ones As Drummond contends, all the evidence points to the conclusion that the higher percentage of diamino acids which is often present in the proteins of malignant growths is due to the greater proportion of nuclear material which they contain, for similarly high figures for this fraction of the protein molecule are found in the analysis of those normal tissues which possess cells rich in nucleoprotein, as, for example, normal human pancreas and spleen A different explanation of the increased rate of cell division must still be sought

IS PELLAGRA TRANSMISSIBLE?

After reviewing the available evidence of the Robert M Thompson Pellagra Commission regarding the nature of the etiologic factor in pellagra, Vedder[5] wrote in 1914

> I regard the question as to whether pellagra is an infection or a deficiency disease to be entirely open It does not appear to me that any evidence that can be regarded as proof of either hypothesis has yet been presented It is rather a question of weighing the evidence and determining toward which hypothesis the bulk of the evidence points

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[1] Wells H G Chemical Pathology 1914 p 449

[2] Kocher R A The Hexone Bases of Malignant Tumors Jour Biol Chem 1915 **22**, 295

[3] Compare Osborne T B and Mendel L B Jour Biol Chem 1912 **12**, 473, **13** 233 1914 **17**, 325

[4] Drummond J C A Study of the Distribution of Nitrogen in the Proteins of Tumours and Normal Tissues Biochem Jour, 1916 **10** 473

[5] Vedder E B Dietary Deficiency as the Etiological Factor in Pellagra Arch Int Med August 1916 p 137

The commission has been inclined to believe rather strongly that it points to the infectious origin of the disease It seems to me that so far as I have examined it the evidence points at least as strongly toward a dietary deficiency

Vedder's conclusions were evidently dictated by the similarity between pellagra and other known deficiency diseases, notably beriberi and scurvy Much of the evidence that has been presented as proof of the infectious nature of pellagra can be reasonably explained in accordance with a deficiency hypothesis Since then, Goldberger's studies on the causation and mode of preventing pellagra have added evidence to the belief that this disease rests on some dietary defect, and that relief can be brought about by changing the food of the patients[6] His work is in harmony with the earlier failure of Lavinder and Francis[7] and others of the U S Public Health Service to transmit pellagra to monkeys by inoculation of material from pellagrous lesions To this may now be added the recently reported experimental attempts at transmission of pellagra to the human subject[8] Sixteen volunteers, mostly members of the Public Health Service, were subjected to procedures intended to afford evidence of the communicability of pellagra, in case this was of an infectious nature The materials used were blood, nasopharyngeal secretions, epidermal scales from pellagrous lesions, urine and feces Blood was administered by intramuscular or subcutaneous injection, secretions by application to the mucosa of the nose and nasopharynx, scales and excreta by mouth Both urine and feces were ingested by fifteen of the volunteers, five of whom also took blood, secretions and scales The experiments were performed at four widely separated localities (Washington, D C, Columbia, S C, Spartanburg, S C, and New Orleans), at which different groups of the volunteers were assembled As none of the subjects, during a period of between five and seven months, have developed evidence justifying a diagnosis of pellagra, no support is lent to the belief, still widely held, that pellagra is a communicable disease The epidemiologic features are not incompatible with either hypothesis as to etiology

THE EFFECT OF CHRONIC LEAD POISONING IN THE GERM CELLS OF THE MALE

The effect on the offspring of lead poisoning in the father has long been suspected from statistics on the probability of harmful effects from paternal plumbism in man on the germ cells[9] The suspicions have been justified by the experimental studies of Cole and Bachhuber[10] at the University of Wisconsin, and of Weller[11] at the University of Michigan The results of paternal lead poisoning are not manifested in sterility or stillbirths, but they are exhibited in the offspring by a reduction of approximately 20 per cent in the average birth weight, by an increased number of deaths in the first week of life, and by a general retardation in development such that the offspring of lead-poisoned males often remain permanently underweight One naturally inquires whether the spermatozoa of lead-poisoned males show any detectable changes associated with lead blastophthoria The testes of such individuals have now been examined in sufficient numbers by Weller[12] to permit the statement that in the majority of cases no histologic differences can be detected between the testes of lead-poisoned subjects and those of normal controls Spermatogenesis appears to take place along normal lines and at a rate which seems not unlike that in normal individuals This observation is in no degree incompatible with a state of true blastophthoria, since it is to be expected that, if fertilization takes place at all, the spermatozoa will show no great variation from the normal as far as their appearance is concerned The reason for the inferiority of the offspring is to be sought rather in qualitative changes in the germ plasm In a limited group of instances, in which the male animal became sterile during the administration of lead, histologic examination of the testes showed complete aspermatogenesis with marked atrophy and vacuolar degeneration of the germinal epithelium

THE SEARCH FOR THE IDEAL ANTISEPTIC

The ideal antiseptic procedure obviously would be one which would destroy the infecting micro-organisms but leave undamaged the body cells with which it might come into contact The quest for such a substance has continued with enthusiasm almost since the time of Koch's fundamental researches on chemical disinfectants published thirty-five years ago The substances proposed during this period have been legion They represent the most diverse types of chemical compounds, acting by a variety of reactions, but all resulting in a damage to the bacterial body, whether it be by rapid oxidation, by coagulation of the protoplasm, by dehydration, by chemical combination or by some more subtle process The living body is a structure of living cells comparable in many respects with the inimical micro-organisms The tissue cells, therefore, are likely to experience as much damage from efficient antiseptics as do the invading bacteria Experience teaches what considerations of comparative biology lead one to expect, that in infected wounds, for example, the antiseptic must often be applied in such strength that body cells as well as bacteria are injured or destroyed Nevertheless the search for the ideal has continued in the hope, often seemingly useless and unjustified, of ultimately finding some discriminating agent suitable for bacterial destruction After all, the tissue cells are not identical with the lowest forms of microbiotic structure, or entirely analogous to them One technical difficulty in the planning of investigations has been the lack of suitable isolated body cells which could be observed with respect to the possible effects of antiseptics This has been overcome, however, by the use of so-called tissue cultures in which the growth of isolated connective tissue cells can now easily be watched in the laboratory In this way R A Lambert[1] has followed the effect of the same chemical agents on bacteria and tissue cells growing together in vitro Some estimate of the comparative resistance of body tissues to various antiseptic chemicals should thus be gained It is apparent from his study that in the case of the chemical substances tested, such as potassium cyanid, phenol (carbolic acid), tricresol, hydrogen dioxid and alcohol, tissue cells were definitely more easily killed than were bacteria With certain other disinfectants the difference was not so striking Iodin stands out as the one chemical tested to which cells were found more resistant than were staphylococci A good growth of cells was seen after exposure to a 1 2,000 solution of iodin for an hour, a strength sufficient to sterilize the tissue completely in most instances Lambert points to his experiments as further evidence of the widely accepted value of iodin as an antiseptic They indicate that, at least in weak aqueous solution, it should not, as is often stated, injure or irritate the tissues Lambert is careful to point out, however, that iodin has the power of rapidly dissolving fibrin Ordinarily the union of wound surfaces by the fibrin facilitates healing The use of fibrin-dissolving, but tissue-conserving solutions raises a debatable theoretical question which application in practice can perhaps best decide

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[6] Goldberger Joseph Pellagra Causation and a Method of Prevention The Journal A M A, Feb 12 1916 p 471 Goldberger Joseph and Wheeler G A Experimental Pellagra in the Human Subject, Pub Health Rep Nov 12 1915 Observations on the Chemical Symptoms of Pellagra editorial The Journal A M. A. April 22 1916, p 1311 Pellagra in Nashville May 27 1916 p 1704

[7] Lavinder C H Francis Edward, Grim R M and Lorenz W F Attempts to Transmit Pellagra to Monkeys The Journal A M A Sept 26 1914 p 1093

[8] Goldberger Joseph *The Transmissibility of Pellagra* Pub Health Rep 1916 **31**, 3159

[9] The Effect on the Offspring of Lead Poisoning in the Father, editorial, The Journal A M A, Dec 25 1915 p 2242

[10] Cole and Bachhuber Proc Soc Exper and Med 1914 **2**, 24

[11] Weller C V Jour Med Research 1915 **33**, 271

[12] Weller, C V Histological Study of the Testes of Guinea Pigs Showing Lead Blastophthoria Proc Soc Exper Biol and Med 1916 **14**, 14

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS, EDUCATION PUBLIC HEALTH, ETC)

ARKANSAS

Personal—Drs Dee C Lee, Rolland F Darnall and Patrick Murphy have resigned as members of the staff of the State Hospital for Nervous Diseases, Little Rock——Dr Robert B Corney, Little Rock, has been appointed physician to the Tucker Convict Farm

Hospital Activities—The executive committee of the campaign for raising funds for the proposed new City Hospital, Little Rock, announces that it will start a campaign to raise $50 000 which will bring the fund to the desired figure of $200 000——The legislature will be asked to appropriate $187,000 for the work against tuberculosis and for the maintenance of the State Tuberculosis Sanatorium, Booneville, during the next biennium One of the principal improvements suggested is the erection of a building for negroes suffering from tuberculosis, and $5,000 for a children s building

CALIFORNIA

Personal—The resignation of Dr Joseph Henry Catton San Francisco as assistant in medicine on the faculty of the University of California, was accepted by the regents at their last meeting

Supreme Court to Decide—It is reported that P L Crane, a chiropractor, is attempting to have the California medical law declared unconstitutional on the grounds that it exempts one group of practitioners—Christian Scientists—but requires chiropractors to pass an examination The case has been appealed to the United States Supreme Court after having been suspended three different times by the United States District Court

Lectures at Stanford Medical School—A course of popular medical lectures will be given at the Stanford University Medical School, San Francisco, during January, February and March The program for January is as follows

January 12, What Every One Should Know About Cancer' Dr Harry M Sherman representing the American Society for the Control of Cancer

January 26, Modern Efforts to Secure Painless Childbirth ' Dr Frank W Lynch, Professor of Obstetrics and Gynecology, University of California

CONNECTICUT

Smallpox—Waterbury had reported 104 cases of smallpox up to December 19 Compulsory vaccination is being enforced Dr John T Black, secretary of the state board of health is in Waterbury, and has assumed active charge of the situation

State Health Association Organized—At a largely attended meeting of the health officers medical men and others interested in public health held at the Chamber of Commerce in New Haven, December 6, the Connecticut Public Health Association was organized and Dr Stephen J Maher, New Haven, was elected president

Personal—Dr John W Churchman New Haven, who has been on duty at Bar le Duc, France, for several months has arrived home and expects to return to his work on the Western war front in March——Dr Walter H Brown has been placed in charge of the health department of Bridgeport He will reorganize the department and establish a department of vital statistics——Dr James E Hair, Bridgeport, has been injured in an automobile accident

DISTRICT OF COLUMBIA

Medical Society Elects Officers—Officers for 1917 have been elected by the Medical Society of the District of Columbia as follows president, Dr G Wythe Cook vice presidents Drs Charles M Beall and Milton H Prosperi, recording secretary, Dr Henry C Macatee, corresponding secretary, Dr J Lawn Thompson, and treasurer Dr Charles W Franzoni

Medical Committee for Inauguration Day—To safeguard the crowds that will be in Washington to view the parade and take part in other ceremonies attendant on the inauguration of President Wilson on March 5 next 140 of the city s physicians have been organized into a medical committee, of which Dr Phillip S Roy is chairman, and Dr William P Carr, vice chairman

Novel Suit for Damages—A Washington physician and a hospital are named as defendants in a novel suit recently filed The basis of the suit is the quarantining of a rooming house kept by the plaintiffs, in August last on account of smallpox A roomer it is alleged, was taken sick and by direction of the physician was taken to the hospital for treatment After remaining in the hospital four or five days the patient was returned to the rooming house and the case reported to the health officer as possibly smallpox Investigation confirmed the physician's suspicions and the patient was taken to the smallpox hospital and the rooming house quarantined The plaintiffs allege that the physician and the proper authorities at the hospital should have known that the patient had smallpox that the patient was returned to their rooming house without notice to them of the probable nature of his disease, and that they have suffered damage as the result

GEORGIA

New Medical Societies Organized—Physicians of the second district met in Thomasville December 14 and organized the Second District Medical Association, electing Dr Everett Daniel Moultrie president, Dr William J Jennings Thomasville, vice president, and Dr Eric J Newsom, Camilla secretary-treasurer The first regular meeting of the association will be held in Moultrie in February——Physicians of Colquitt County met at Moultrie December 21, and organized the Colquitt County Medical Society, electing Dr William I Jerkins president, Dr J A Summerlin Hartsfield vice president, and Dr William W Massey, Moultrie secretary-treasurer The first regular meeting will be held at Moultrie, February 12

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[1] Lambert, R A The Comparative Resistance of Bacteria and Human Tissue Cells to Certain Common Antiseptics Jour Exper Med, 1916, 24, 683

New Officers—Georgia Medical Society, of Savannah, December 12 president, Dr Antonio J Waring, vice president, Dr James O Baker and secretary-treasurer, Dr William H Myers, all of Savannah ——Eleventh District Medical Society, at Valdosta president, Dr Quitman Holton, Douglas, vice president, Dr John W Simmons, Brunswick, secretary-treasurer, Dr Frank Bird Valdosta, and councilors, Drs Robert C Woodward, Adel, and Henry C Welchel, Douglas Waycross was selected as the next meeting place ——Third District Medical Association, at its semiannual meeting, at Cordele president Dr Thomas J McArthur, Cordele, vice president Dr Joseph T Stukes, Americus, and secretary, Dr Charles A Greer Oglethorpe Americus was selected as the next place of meeting

ILLINOIS

Paris Protects Against Smallpox—Mayor Hoff of Paris issued an order, December 26 that every one coming into Paris from Terre Haute, Ind where smallpox exists, should be vaccinated

Sanitary Survey of Quincy—The city council of Quincy has invited the U S Public Health Service to conduct a sanitary survey of Quincy in cooperation with the state board of health

Vote on Sanatorium Declared Illegal—Attorney General Lucey is said to have decided that the special election held in Aurora last month in which the supervisoors of Kane County were authorized to appropriate money for a tuberculosis sanatorium, was illegal, because of incorrect wording of the ballot

Personal—Dr Marguerite D Mitchell Macdougall Aurora was found semiconscious, almost frozen, and seriously injured in the rear of her home in Aurora December 31 She states that she slipped and fell from the window but her husband is reported to be in jail in Aurora charged with assault with intent to kill

Health News—The November number of *Health News,* the official monthly bulletin of the Illinois State Board of Health, is devoted chiefly to poliomyelitis, one paper being on the orthopedic after-care of paralysis victims another on the diagnosis which is a thorough presentation of the subject, and a third on recent developments in poliomyelitis which presents some general considerations of the subject in an interesting manner

Vaccination Ruling Upheld—The campaign of the Illinois State Board of Health to exclude unvaccinated children from schools, during an epidemic of smallpox, has been upheld by a decision of Master in Chancery E H Marsh of Rockford An injunction had been asked against the Rockford Board of Education, which had directed the exclusion from schools of unvaccinated children, as required by the ordinance The master in chancery held that the ordinance was valid and refused to grant the injunction

Contagious Disease Hospital—The city council finance committee, on December 29 authorized Health Commissioner Robertson to make habitable the new contagious disease hospital and appropriated $10,000 for this purpose The building has been completed since November 28, but no appropriation had been available for its equipment It is reported that the hospital will be ready to receive patients, January 8 It is probable that the hospital will be known as the Alfred C Cotton Hospital ——At a meeting of the Chicago Woman's Club, December 31, addresses were made by Health Commissioner Robertson, Drs Willis O Nance, William R Cubbins, William K Murray, Daniel A K Steele, William A Noble and A Augustus O Neil and it was voted to cooperate with the health department in protecting the children of the city from contagious diseases

Venereal Disease Prevention—At a meeting held December 14 at the City Club under the auspices of the American Social Hygiene Association a movement was inaugurated to rid Chicago of social disease The crusade is to be based purely on scientific principles and will be begun when a committee of volunteer social workers and physicians has been formed Clinics will be established in various sections of Chicago ——Favorable action on an ordinance providing for reporting of venereal diseases without the name of the patient being disclosed was advocated before the city council committee on health, December 26, by Rev John P Brushingham, secretary of the morals committee Addresses in favor of the ordinance were made by Drs Roy R Ferguson, Hugo E Betz, James A Clark Eugene H Wunderlich and Prof Herbert L Willett

Chicago

Hospital to Be Reopened—A meeting to consider plans for the reopening of Maimonides Hospital was held at the Hebrew Institute, December 12, and Drs Jacob Frank, Victor L Schrager and others delivered addresses Funds are being raised rapidly to meet the mortgage on this building, which will enable it to be reopened

Sister Mary Raphael Dies—Sister Mary Raphael McGill, for thirty-five years on duty at Mercy Hospital, and known to thousands of medical students and practitioners of the city, died December 24 At the funeral services, interns of the hospital were active pallbearers, and members of the staff served as honorary pallbearers

Personal—Dr Conrad G Appelle, an intern in the Cook County Hospital, is reported to be seriously ill with typhoid fever ——Dr Charles F Yerger, Cicero, who has been seriously ill for two months from septicemia, secondary to a tonsillar infection, is convalescent ——Major Daniel W Rogers, M C, Ill N G, assigned Seventh Infantry, has resigned, and has been succeeded by Major Eugene G Clancey

Defective Children—The special committee appointed to consider means for providing for physically defective children held a meeting, December 17, at which Health Commissioner Robertson stated that 86,000 children had been examined, that of these 12,000 had defective vision, 1 800, defective hearing, 6,215 diseased nasal organs, 29,642, enlarged tonsils 14,652, adenoids, and 14,044 children had both enlarged tonsils and adenoids

KENTUCKY

Trachoma—Thirty-one mild cases of trachoma were discovered at Bowling Green in three schools comprising 870 pupils This is said to be a smaller percentage of cases than in the schools of other towns of equal size in the state The examinations were made by Dr John McMullen, Lexington government trachoma expert

Louisville Physicians Elect Officers—At the annual meeting of the Jefferson County Medical Society held in Louisville December 18 the following officers were elected president Dr Granville S Hanes, vice presidents, Drs Elmer L Henderson and Joshua B Lukins, secretary, Dr W Hamilton Long, and treasurer, Dr Frank H Ritter

Health Officers' School—The school of county and city health officers of Kentucky held a three-day session in Louisville, December 13 to 16 under the auspices of the state board of health Asst Surg Gen John W Trask, U S P H S, spoke on birth and death reports and Dr John F Anderson, formerly U S P H S, and Asst Surg Lewis R Thompson U S P H S, spoke on various phases of the anterior poliomyelitis situation Dr John G South, Frankfort presided over the conference

Personal—Dr Luther D Nichols, Hickman, was injured in an automobile accident, recently ——Dr J C Sullivan, Dublin, has been appointed first assistant physician at the Eastern State Hospital Lexington to fill the vacancy caused by the appointment of Dr Squire L Helm as superintendent of the Institute for the Care of Feebleminded Children, Lexington ——Dr Eldridge L Bushby Henderson, has been appointed second assistant physician to the Eastern State Hospital, Lexington

Decision on Pollution of Streams—At Princeton, suit was brought against the city for damages on account of pollution of a stream by city sewage, and also asking an injunction against the city enjoining it from discharging sewage into the stream The circuit court granted the injunction and awarded $2,500 damages The court of appeals affirmed the judgment for damages but dismissed the injunction on the ground that the evidence showed that the sewage could be discharged into the stream in such a way as not seriously to injure property owners below the sewer outlet

LOUISIANA

New Armory Opened—The Medical Department of the Louisiana National Guard formally opened its new armory in New Orleans, December 7

New Officers—At the annual meeting of the Orleans Parish Medical Society, in New Orleans, December 19, the following officers were elected Dr Paul J Gelpi, president, Drs Frank J Chalaran, J George Dempsey and Hector E Bernadas, vice presidents, and Dr Henry W E Walther, treasurer

Personal—Charles J Ball, special inspector for the New Orleans Board of Health, has been appointed superintendent of the Hospital for Contagious Diseases, recently opened in that city——Dr John A Devron, New Orleans, has been elected major in the Medical Corps of the Louisiana National Guard——Dr William T O'Reilly has been reappointed health commissioner of New Orleans, and Dr William H Robin, secretary of the City Board of Health

Adopts Higher Requirement—At the meeting of the Louisiana State Board of Medical Examiners, Dec 1, 1916 a resolution was adopted providing that beginning with the session of 1918 1919 no medical school or college will be considered in good standing that does not require for admission at least two years of work in an approved college of arts and sciences This makes seventeen states in which the licensing boards have adopted the two-year standard

Ragweed and Hay-Fever—The New Orleans directorate of the American Hay-Fever Association will ask the legislature at its coming session for legislation for the eradication of ragweed near the city, believed to be the cause of the fall epidemic of hay-fever Enforcement of ordinances of the city concerning weeds has practically eliminated the spring epidemic Examinations of the air on windy days made by the association during the early fall disclosed much ragweed pollen, which was traced to its source outside the city

MARYLAND

Books Left to College—By the will of Dr Holliday Hicks Hayden Baltimore his medical library is left to the College of Physicians and Surgeons

Personal—Dr John F Hogan superintendent of Sydenham Hospital, has been appointed second assistant commissioner of health of Baltimore He will have charge of the Division of Communicable Diseases which will include the work of the health wardens and the department nurses——Dr William R. Geraghty, St Joseph's Hospital, Baltimore has been appointed by the police board department examiner of women and female children to succeed Dr Henry J Walton, Baltimore, resigned——Health Commissioner Blake has announced the appointment of Dr Chester P Woodward as inspector of pasteurization, created by the ordinance of estimates for 1917 in anticipation of the passage of the pure milk ordinance now before the city council——Dr George H Hocking, Govans a member of the State Lunacy Commission, was shot recently and seriously injured by a patient who had suddenly become violently insane

Free Water for Hospitals—The Baltimore Hospital Conference Association has taken up the question of the city supplying the hospitals with free water and removing ashes Water bills vary from $693 for the University Hospital to $3 504 for the Johns Hopkins Hospital In the case of the Hebrew Hospital, exemption from these charges would give $1,300 more annual income In the case of the University Hospital, it would be equivalent to an addition of about $1,000 to their annual income In the case of the Johns Hopkins Hospital it would probably mean between $4 000 and $5,000 a year added to their funds Each of these institutions treats a large number of persons without charge—31 per cent of all the patients at the University Hospital, 50 per cent at the Hebrew Hospital, 64 per cent at St Joseph's Hospital There are 225 000 patients treated free each year in the dispensaries of the hospitals forming the association The association feels that if hospitals are big enough to do this great public work, the city should do its share by furnishing free water and removing ashes

MASSACHUSETTS

Osteopaths' Offer Declined—Osteopaths recently offered to establish a clinic for infantile paralysis patients in connection with the Boston City Hospital The hospital trustees declined the offer and Superintendent Dowling stated that 'the hospital was already prepared to do all that could be done for infantile paralysis patients '

Harvard Medical Lectures.—The faculty of medicine of Harvard University offers this year, as usual, a course of free public lectures to be given at the Medical School Longwood Avenue on Sunday afternoons at 4 o'clock, from January 7 to April 22 inclusive The program for January is as follows

January 7—Rev Dr Francis G Peabody Alcohol and Efficiency

January 14—Dr Hugh Cabot The Care of the Wounded with the British Expeditionary Force in France

January 21—Dr E W Taylor Infantile Paralysis Precautions Necessary and Unnecessary

January 28—Dr W T Porter Shock in the Trenches

Personal—Dr Frankwood E Williams has resigned as chairman of the Massachusetts Advisory Prison Board and executive secretary of the Massachusetts Society of Mental Hygiene, to accept an appointment as associate medical director for the National Committee for Mental Hygiene and editor of the new quarterly magazine which will deal with mental health He will also be in charge of the educational work of mental hygiene throughout the country——Drs Hermon C Bumpus Frank C Richardson, F W Anthony Allen J McLaughlin Milton J Rosenau, Walter E Fernald and George M Kline have been elected directors of the Massachusetts Society for Mental Hygiene——Dr Henry S Rowen, Brighton has succeeded Dr Francis J Keany, deceased, as a trustee of the Boston State Hospital——Dr Hiram Amrial has been appointed assistant physician of the Boston City Hospital

MINNESOTA

Hospital News—St Elizabeth's Hospital, Wabasha is to be enlarged by the building of an "L" of the same height as the main building——The Martha G Ripley Memorial Hospital, adjoining the Maternity Hospital, Minneapolis was dedicated December 9 The dedicatory address was delivered by Rev Franklin W Sweet

Sanatorium Notes—The Wabasha County Tuberculosis Sanatorium, Buena Vista, was formally opened, December 19——Clay-Becker Counties Sanatorium Lake Park was opened with elaborate ceremony, December 3 The institution which has been constructed at a cost of $20,000, will accommodate thirty-two patients

The Study of Health Problems—A combination of all the health activities of Minneapolis under one nonpolitical board was discussed December 18, at a meeting of the committee organized in April by the city council The medical members of this committee are Dr Arthur E Benjamin as representative of the Board of Charities and Correction, and Drs Charles F Dight and Jonas M Kistler, representing the city council

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NEW YORK

Personal—Dr James A McMorrow, Syracuse, is ill with appendicitis at the Crouse-Irving Hospital treasurer The first regular meeting will be held at Moultrie, February 12

New Officers—Georgia Medical Society, of Savannah, December 12 president, Dr Antonio J Waring, vice president Dr James O Baker and secretary-treasurer Dr William H Myers, all of Savannah——Eleventh District Medical Society at Valdosta president, Dr Quitman Holton, Douglas, vice president, Dr John W Simmons, Brunswick, secretary-treasurer Dr Frank Bird, Valdosta, and councilors, Drs Robert C Woodward, Adel, and Henry C Welchel, Douglas Waycross was selected as the next meeting place——Third District Medical Association, at its semiannual meeting, at Cordele president, Dr Thomas J McArthur, Cordele, vice president Dr Joseph T Stukes, Americus, and secretary, Dr Charles A Greer, Oglethorpe Americus was selected as the next place of meeting

ILLINOIS

Paris Protects Against Smallpox—Mayor Hoff of Paris issued an order, December 26, that every one coming into Paris from Terre Haute, Ind, where smallpox exists should be vaccinated

Sanitary Survey of Quincy—The city council of Quincy has invited the U S Public Health Service to conduct a sanitary survey of Quincy in cooperation with the state board of health

Vote on Sanatorium Declared Illegal—Attorney General Lucey is said to have decided that the special election held in Aurora last month in which the supervisoors of Kane County were authorized to appropriate money for a tuberculosis sanatorium, was illegal, because of incorrect wording of the ballot

Personal—Dr Marguerite D Mitchell Macdougall, Aurora was found semiconscious almost frozen and seriously injured in the rear of her home, in Aurora, December 31 She states that she slipped and fell from the window but her husband is reported to be in jail in Aurora charged with assault with intent to kill

Health News—The November number of *Health News* the official monthly bulletin of the Illinois State Board of Health is devoted chiefly to poliomyelitis one paper being on the orthopedic after-care of paralysis victims another on the diagnosis which is a thorough presentation of the subject, and a third on recent developments in poliomyelitis which presents some general considerations of the subject in an *interesting manner*

Vaccination Ruling Upheld—The campaign of the Illinois State Board of Health to exclude unvaccinated children from schools, during an epidemic of smallpox has been upheld by a decision of Master in Chancery E H Marsh of Rockford An injunction had been asked against the Rockford Board of Education which had directed the exclusion from schools of unvaccinated children as required by the ordinance The master in chancery held that the ordinance was valid and refused to grant the injunction

Contagious Disease Hospital—The city council finance committee, on December 29, authorized Health Commissioner Robertson to make habitable the new contagious disease hospital and appropriated $10 000 for this purpose The building has been completed since November 28, but no appropriation had been available for its equipment It is reported that the hospital will be ready to receive patients, January 8 It is probable that the hospital will be known as the Alfred C Cotton Hospital——At a meeting of the Chicago Woman's Club, December 31, addresses were made by Health Commissioner Robertson, Drs Willis O Nance, William R Cubbins, William K Murray, Daniel A K Steele, William A Noble and A Augustus O Neil and it was voted to cooperate with the health department in protecting the children of the city from contagious diseases

Venereal Disease Prevention—At a meeting held December 14 at the City Club under the auspices of the American Social Hygiene Association a movement was inaugurated to rid Chicago of social disease The crusade is to be based purely on scientific principles and will be begun when a committee of volunteer social workers and physicians has been formed Clinics will be established in various sections of Chicago——Favorable action on an ordinance providing for reporting of venereal diseases without the name of the patient being disclosed was advocated before the city council committee on health December 26, by Rev John P Brushingham, secretary of the morals committee Addresses in favor of the ordinance were made by Drs Roy R Ferguson, Hugo E Betz, James A Clark, Eugene H Wunderlich and Prof Herbert L Willett

Chicago

Hospital to Be Reopened—A meeting to consider plans for the reopening of Maimonides Hospital was held at the Hebrew Institute, December 12, and Drs Jacob Frank, Victor L Schrager and others delivered addresses Funds are being raised rapidly to meet the mortgage on this building, which will enable it to be reopened

Sister Mary Raphael Dies—Sister Mary Raphael McGill, for thirty-five years on duty at Mercy Hospital, and known to thousands of medical students and practitioners of the city, died December 24 At the funeral services, interns of the hospital were active pallbearers, and members of the staff served as honorary pallbearers

Personal—Dr Conrad G Appelle, an intern in the Cook County Hospital, is reported to be seriously ill with typhoid fever——Dr Charles F Yerger, Cicero, who has been seriously ill for two months from septicemia secondary to a tonsillar infection is convalescent——Major Daniel W Rogers, M C, Ill N G, assigned Seventh Infantry, has resigned, and has been succeeded by Major Eugene G Clancey

Defective Children—The special committee appointed to consider means for providing for physically defective children held a meeting, December 17, at which Health Commissioner Robertson stated that 86,000 children had been examined, that of these 12,000 had defective vision, 1 800, defective hearing, 6 215, diseased nasal organs, 29,642, enlarged tonsils, 14 652, adenoids, and 14,044 children had both enlarged tonsils and adenoids

KENTUCKY

Trachoma—Thirty-one mild cases of trachoma were discovered at Bowling Green in three schools comprising 870 *pupils This is said to be a smaller percentage of cases* than in the schools of other towns of equal size in the state The examinations were made by Dr John McMullen, Lexington government trachoma expert

Louisville Physicians Elect Officers—At the annual meeting of the Jefferson County Medical Society held in Louisville December 18, the following officers were elected president, Dr Granville S Hanes, vice presidents, Drs Elmer L Henderson and Joshua B Lukins, secretary, Dr W Hamilton Long and treasurer, Dr Frank H Ritter

Health Officers' School—The school of county and city health officers of Kentucky held a three-day session in Louisville, December 13 to 16, under the auspices of the state board of health Asst Surg Gen John W Trask U S P H S spoke on birth and death reports and Dr John F Anderson formerly U S P H S, and Asst Surg Lewis R Thompson U S P H S, spoke on various phases of the anterior poliomyelitis situation Dr John G South, Frankfort, presided over the conference

Personal—Dr Luther D Nichols, Hickman, was injured in an automobile accident, recently——Dr J C Sullivan, Dublin, has been appointed first assistant physician at the Eastern State Hospital, Lexington, to fill the vacancy caused by the appointment of Dr Squire L Helm as superintendent of the Institute for the Care of Feebleminded Children, Lexington——Dr Eldridge L Bushby, Henderson, has been appointed second assistant physician to the Eastern State Hospital, Lexington

Decision on Pollution of Streams—At Princeton, suit was brought against the city for damages on account of pollution of a stream by city sewage, and also asking an injunction against the city enjoining it from discharging sewage into the stream The circuit court granted the injunction and awarded $2,500 damages The court of appeals affirmed the judgment for damages but dismissed the injunction on the ground that the evidence showed that the sewage could be discharged into the stream in such a way as not seriously to injure property owners below the sewer outlet

LOUISIANA

New Armory Opened—The Medical Department of the Louisiana National Guard formally opened its new armory in New Orleans, December 7

New Officers—At the annual meeting of the Orleans Parish Medical Society, in New Orleans, December 19, the following officers were elected Dr Paul J Gelpi, president, Drs Frank J Chalaran, J George Dempsey and Hector E Bernadas, vice presidents, and Dr Henry W E Walther, treasurer

Personal.—Charles J Ball, special inspector for the New Orleans Board of Health, has been appointed superintendent of the Hospital for Contagious Diseases, recently opened in that city——Dr John A Devron, New Orleans, has been elected major in the Medical Corps of the Louisiana National Guard——Dr William T O'Reilly has been reappointed health commissioner of New Orleans, and Dr William H Robin, secretary of the City Board of Health

Adopts Higher Requirement—At the meeting of the Louisiana State Board of Medical Examiners, Dec 1, 1916 a resolution was adopted providing that beginning with the session of 1918-1919 no medical school or college will be considered in good standing that does not require for admission at least two years of work in an approved college of arts and sciences This makes seventeen states in which the licensing boards have adopted the two-year standard

Ragweed and Hay-Fever—The New Orleans directorate of the American Hay-Fever Association will ask the legislature at its coming session for legislation for the eradication of ragweed near the city, believed to be the cause of the fall epidemic of hay-fever Enforcement of ordinances of the city concerning weeds has practically eliminated the spring epidemic Examinations of the air on windy days made by the association during the early fall disclosed much ragweed pollen, which was traced to its source outside the city

MARYLAND

Books Left to College—By the will of Dr Holliday Hicks Hayden, Baltimore, his medical library is left to the College of Physicians and Surgeons

Personal—Dr John F Hogan, superintendent of Sydenham Hospital, has been appointed second assistant commissioner of health of Baltimore He will have charge of the Division of Communicable Diseases which will include the work of the health wardens and the department nurses——Dr William R. Geraghty, St. Joseph's Hospital, Baltimore has been appointed by the police board department examiner of women and female children to succeed Dr Henry J Walton, Baltimore, resigned——Health Commissioner Blake has announced the appointment of Dr Chester P Woodward as inspector of pasteurization, created by the ordinance of estimates for 1917 in anticipation of the passage of the pure milk ordinance now before the city council——Dr George H Hocking, Govans, a member of the State Lunacy Commission, was shot recently and seriously injured by a patient who had suddenly become violently insane

Free Water for Hospitals—The Baltimore Hospital Conference Association has taken up the question of the city supplying the hospitals with free water and removing ashes Water bills vary from $693 for the University Hospital to $3 504 for the Johns Hopkins Hospital In the case of the Hebrew Hospital, exemption from these charges would give $1,300 more annual income In the case of the University Hospital it would be equivalent to an addition of about $1 000 to their annual income In the case of the Johns Hopkins Hospital it would probably mean between $4 000 and $5 000 a year added to their funds Each of these institutions treats a large number of persons without charge—31 per cent of all the patients at the University Hospital, 50 per cent at the Hebrew Hospital, 64 per cent at St Joseph's Hospital There are 225,000 patients treated free each year in the dispensaries of the hospitals forming the association The association feels that if hospitals are big enough to do this great public work, the city should do its share by furnishing free water and removing ashes

MASSACHUSETTS

Osteopaths' Offer Declined—Osteopaths recently offered to establish a clinic for infantile paralysis patients in connection with the Boston City Hospital The hospital trustees declined the offer and Superintendent Dowling stated that 'the hospital was already prepared to do all that could be done for infantile paralysis patients'

Harvard Medical Lectures.—The faculty of medicine of Harvard University offers this year, as usual a course of free public lectures to be given at the Medical School Longwood Avenue on Sunday afternoons at 4 o'clock from January 7 to April 22 inclusive The program for January is as follows

January 7—Rev Dr Francis G Peabody Alcohol and Efficiency

January 14—Dr Hugh Cabot The Care of the Wounded with the British Expeditionary Force in France

January 21—Dr E W Taylor Infantile Paralysis Precautions Necessary and Unnecessary

January 28—Dr W T Porter Shock in the Trenche

Personal—Dr Frankwood E Williams has resigned as chairman of the Massachusetts Advisory Prison Board and executive secretary of the Massachusetts Society of Mental Hygiene, to accept an appointment as associate medical director for the National Committee for Mental Hygiene and editor of the new quarterly magazine which will deal with mental health He will also be in charge of the educational work of mental hygiene throughout the country——Drs Hermon C Bumpus Frank C Richardson, F W Anthony, Allen J McLaughlin Milton J Rosenau, Walter E Fernald and George M Kline have been elected directors of the Massachusetts Society for Mental Hygiene——Dr Henry S Rowen, Brighton has succeeded Dr Francis J Keany deceased as a trustee of the Boston State Hospital——Dr Hiram Amrial has been appointed assistant physician of the Boston City Hospital

MINNESOTA

Hospital News—St Elizabeth's Hospital Wabasha is to be enlarged by the building of an 'L" of the same height as the main building——The Martha G Ripley Memorial Hospital adjoining the Maternity Hospital, Minneapolis was dedicated, December 9 The dedicatory address was delivered by Rev Franklin W Sweet

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New York City

Birth Control Rejected — The Medical Society of the County of New York at its meeting, December 26, by a vote of 210 to 72, voted against any change in the law which would permit physicians to advise married couples as to methods of birth control

Fined for Selling Impure Drugs — A health department inspector recently purchased sodium salicylate from a drug store which on analysis proved to be only 15 per cent pure The magistrate in the municipal term court imposed a sentence on the druggist of $500 fine or thirty days in jail

Harvey Society Lecture — The next Harvey Society lecture will be given at the New York Academy of Medicine on the evening of Jan 13 1917 At this time Prof E V McCollum of the University of Wisconsin will lecture on "The Supplementary Dietary Relationships Among Our Natural Food Stuffs"

Increase in Street Accidents in 1916 — The figures compiled by the Bureau of Records of the Department of Health show that for the first eleven months of 1916 there were nearly 18 per cent more deaths due to street vehicles and surface cars than in the corresponding period of 1916 In 1915 street vehicles were responsible for 453 deaths, in 1916, for 529 Electric cars were responsible for 77 fatalities in 1915 and for 96 in 1916 Falls on the sidewalks or streets caused 50 deaths during the first eleven months of 1915 against 81 for 1916 Falls from wagons cars etc, caused 46 deaths in 1915 and 59 in 1916 That there should be this increase in the number of accidents in view of the large amount of safety-first" educational work and the improved traffic regulations is regarded as remarkable and as indicating the need of still greater efforts in this direction

NORTH CAROLINA

District Society Meeting — At the annual meeting of the Seventh District Medical Society held in Monroe December 5 the following officers were elected president, Dr Henry D Stewart, Monroe, vice president Dr William F Mitchell Shelby, and secretary Dr Silas R Thompson, Charlotte It was decided to hold the next meeting at Shelby on the second Tuesday of October 1917

High Birth Rate — The official records of the registration of vital statistics for the first eleven months of 1916 show 76,704 births, 31,776 deaths and 7 104 stillbirths This is equivalent to a death rate of 13 4 and a birth rate of 32 2 per thousand During the same period thirty convictions were secured for failure to make reports of births, and fines amounting to $115 98 were imposed

Personal — Dr Herbert A Codington has resigned as superintendent of the James Walker Memorial Hospital Wilmington to enter into private practice in that city——Dr Joel D Whitaker Raleigh sustained a fracture of the leg in an automobile accident at Indianapolis several weeks ago, and will not be able to resume practice as early as expected, as it has been necessary to refracture the leg

OHIO

Personal — Dr Charles C Moffett Elyria, is in a critical condition from cerebral hemorrhage——Dr John E Monger, Greenville, is reported to have accepted the appointment of registrar of vital statistics under the state board of health

Chiropractor Prosecuted — Perry D Parks, a chiropractor of Portsmouth, Ohio was indicted in October by the Grand Jury of Scioto County on a charge of practicing medicine illegally He pleaded not guilty and was released on bond

Sue for Licenses — Two chiropractors, Calvin C Rutledge of Bowling Green and Joseph W Netrefa of Cleveland have filed suits against the State Medical Board to compel the granting of certificates to practice which the board had refused to issue

Academy Election — At the annual meeting of the Columbus Academy of Medicine, December 18 Dr Ernest Scott, Clintonville, was elected president Dr Raymond A Rice, Columbus, vice president, and Dr Ivor G Clark, Columbus, secretary-treasurer

Illegal Practitioner Arrested — "Dr" Roland O McFarren of Massillon, Ohio, was arrested recently on the charge of practicing medicine without a license He is said to prescribe "Dr McFarren's Vegetable Compound" He pleaded not guilty and was released on bond

Divine Healer Arrested — A self-styled "divine healer," Mary A Rose, also known as Delia Deimling is reported to have been arrested at Springfield, Ohio, recently, charged with practicing medicine without a license She pleaded guilty and was released on condition that she leave the state and never return

Cincinnati

Personal — Dr Rufus B Hall, senior gynecologist at the Cincinnati City Hospital has resigned after nearly twenty years' service——Dr Fletcher Langdon fell down stairs December 12, sustaining severe injuries to the shoulder and nose——Dr J Edward Pirrung has been appointed assistant police and fire surgeon

PENNSYLVANIA

Endowment Raised — The campaign for $200,000 for the endowment fund of the Woman's Medical College, Pennsylvania, has just been successfully completed

Gift of Portrait — The Philadelphia County Medical Society is indebted to Richard Y Cooke, president of the Guarantee Trust and Safe Deposit Company of Philadelphia, for a portrait of William Lambdin Knight, M D, eighteenth president of the society

Personal — Dr J Madison Taylor delivered an address before the College of Physicians, Pittsburgh, December 14, on "The Scope of Reconstructive Therapeutics"——Dr Daniel J McCarthy has returned after a visit of inspection to the prison camps in Germany——R A Millikan, professor of physics at the University of Chicago, delivered an address on 'Radiation from Atoms and Electrons," at the Franklin Institute January 4——Dr Arthur S Hagan, Uniontown, who was operated on six weeks ago at the Lakeside Hospital Cleveland has returned home convalescent——Dr George B Kalb, after eighteen years of practice at Erie, has moved to Los Angeles——At the one hundred and fourth annual meeting of the Academy of Natural Sciences, held in Philadelphia December 19, Dr Samuel G Dixon, state commissioner of health was elected president, and Dr Edward J Nolan, librarian

Nurses May Give Anesthetics — W H Keller, first deputy attorney general has given an opinion to Dr John M Baldy, Philadelphia president of the State Bureau of Medical Education and Licensure, that it is not illegal for a nurse who has been trained in the administration of anesthetics to administer such anesthetic as may be prescribed by a physician under and in accordance with his orders and directions Mr Keller says that there is nothing in the law which places the administration of an anesthetic on a different or higher plane than that of any other drug

Examination of Schoolchildren Approved — Dr Samuel G Dixon, state commissioner of health has approved the plan adopted in Pittsburgh to examine all schoolchildren before the opening of school and has advised other school districts to adopt it if possible In Pittsburgh the children come in groups of a dozen or more to the schools to be examined by voluntary physicians and medical inspectors and are given health certificates to show they are free of infantile paralysis, diphtheria, scarlet fever and measles However, no state order for such examination has been sent out

Contagious Diseases — The total number of cases of poliomyelitis in the state from July 1 to Dec 10, 1916, was 2 003, with 494 deaths In July there were 110, August, 714, September, 778, October, 364 and November, 35 The state health commissioner has issued a circular calling attention to the law requiring every school in the state to be fumigated twice a month At Williamsport an epidemic of diphtheria in one of the schools led to an investigation from which the health officer concluded that the bubble fountains were responsible for the spread of the disease In one of the grades the children were so small that they could not drink from the fountains without the lips coming in contact with the cup or pipe In this school use of the bubble fountain was discontinued and individual paper drinking cups provided Eighteen cases of diphtheria had occurred among pupils since the opening of school

UTAH

New Officers — At the annual meeting of the Salt Lake County Medical Society, December 14, the following officers were elected president Dr Robert H Hampton, vice president, Dr George G Richards, secretary, Dr Thomas A Flood (reelected), and treasurer, Dr William L Rich, all of Salt Lake

Infectious Diseases—During the first seventeen days of December there were 191 cases of contagious diseases in Ogden according to the semimonthly report of the health inspector Of the cases, 21 were scarlet fever, 2 diphtheria, 163 measles and 5 chickenpox There were three deaths, all attributed to measles, the epidemic of which was then subsiding In Salt Lake City during the same period it was said that there were about 500 cases of measles

VERMONT

Licenses Revoked—The annual report of the Vermont Board states that the license of Dr John W Merrow has been revoked because of unprofessional conduct and fraudulent representation Since the revocation, it is reported that Merrow has been arrested in New York for illegal transactions in the distribution of narcotics

WASHINGTON

Washington Law Upheld—The supreme court of Washington rendered a decision, December 5, holding that the Medical Practice Act of that state was constitutional This decision was the result of a test case brought by Clyde Boreham, an osteopath, who was alleged to have practiced medicine and surgery without a proper certificate, in that he had removed a patient's tonsils He was licensed to practice osteopathy only, and the court held that he was not entitled to perform the operation on that certificate The lower court assessed a fine of $1 and costs

CANADA

Tuberculosis in Canada—In 1908 there were only 250 beds for the tuberculous available, in 1911 900, today there are 2 000 in the various special hospitals and sanatoria throughout the Dominion

Loss of Life in Asylum Fire—The Asylum for Feeble-Minded Girls at St Ferdinand de Halifax, near Lake William, Megantic County, Quebec was destroyed by fire December 31 In spite of the heroic efforts of the sisters to save the patients, forty-five children died and one of the sisters was also burned to death

Deaths and Births in Ontario in 1915—The total number of births registered in the province of Ontario in the year 1915 was 67,032, as against 66,225 in the previous year The total number of births in the same year was 34,701 males and 32 331 females The illegitimate births numbered 1,472, three more than in 1914 There were 678 twin births and 12 cases of triplets Tuberculosis numbered 2,466 deaths, an increase of 122 over the previous year The deaths from cancer totaled 1 982, an increase of 68 over 1914 The provincial board of health of Ontario is now conducting a campaign of education in respect to cancer and other diseases In infant mortality the deaths under 5 years totaled 8,632, under 1, 6,838

Civil Versus International War—To show what great work lies before the Canadian people in prosecuting a vigorous campaign for the eradication of communicable diseases, the *Health Bulletin* Toronto, compares the deaths in the Canadian Expeditionary Forces to date, with the deaths from typhoid and tuberculosis in Canada in the two years of war The deaths from all causes in the Canadian forces in the war, during two and one-quarter years, have totaled 15 766, while from typhoid and tuberculosis in the same time they have totaled 17 350, or 1,584 more deaths from the two latter diseases than have occurred in war The deaths from the group typhoid, scarlet fever, diphtheria, whooping cough tuberculosis and measles, in the same time, have been 22,560 an excess over war deaths of 6,794 If Canada could prevent this wholesale destruction of human life in peace times repopulation could be effected in a few years

Medical Inspection of Schoolchildren—January 1 the electors of Toronto voted on the question of placing the medical inspection of schoolchildren under the medical officer of health Since its inauguration some six years ago, it has been under the control of the board of education, with a chief medical inspector and several assistants and school nurses Lately, however, it has been found that the work of the school nurses and those of the well-organized department of health was being duplicated, and as there is every evidence of a desire to save on the part of the taxpayer, and as the board of health and the board of education could not arrange terms for amalgamation which amalgamation has been estimated would save at least $35 000 to the city annually, it was decided to submit the proposition to the electors at the municipal elections The medical officer of health Dr Charles J. Hastings, has issued a bulletin, setting forth the work of the department under his charge, in the form of a chain, which showed one link missing namely, that of medical inspection of schoolchildren, and showed a continuous chain of health department activity as adopted in New York Chicago, Philadelphia and other large cities of the United States The results of the election will be announced in a later issue of The Journal

GENERAL

Meningitis on the Border—Army medical officers on the border report that there is no danger of the spread of meningitis among the troops Among the Georgia troops there had been three deaths, and in a Pennsylvania regiment there were two cases, the patients being on the road to recovery No new cases had developed in the eight days previous to the report

Importation of Cassia and Other Spices—The exportation from Hongkong to the United States of cassia for the first nine months of 1916 amounted according to *Commerce Reports*, Dec 28 1916 to $365 520 gold as compared with $67 817 in the same period of 1915 The exports of cassia oil were valued at $88 312, as compared with $37,550 for the nine months of 1915 The exports of spices to the United States were valued at a higher sum for the period named than for any whole previous year

American Congress on Internal Medicine—This organization held its second meeting and first scientific session in New York, December 27 and 28 at the Hotel Astor Dr Reynolds Webb Wilcox in his presidential address, defined the aims and purposes of the organization and the conditions of membership The first scientific session was devoted to a discussion of "The Ductless Glands in Cardiovascular Diseases and Dementia Praecox" and the second scientific session to a symposium on 'Duodenal Ulcer" The following officers were elected president, Dr Reynolds Webb Wilcox New York, vice president, Dr Elias H Bartley, Brooklyn secretary-general, Dr Heinrich Stern, New York, and assistant secretary, Dr Joseph H Byrne, New York, councilors for five years, Dr Jacob Kaufmann New York, Dr Charles G Jennings, Detroit, Dr Judson Daland, Philadelphia, Dr Francis X Dorcum, Philadelphia, Dr Arthur W Fairbanks Brookline, Mass The secretary announced that the organization already had a paid up membership of over 300 and a considerable number of applications for membership

Seaboard Association Meets—The twenty-first annual session of the Seaboard Medical Association was held in Washington, N C December 19 to 22 under the presidency of Dr David T Tayloe, Washington, N C A public health session was held which was well attended and at which addresses were made by Surg Frederick C Smith, U S P H S and Drs J Howell Way Waynesville, Cyrus Thompson, Jacksonville and Charles O Laughinghouse, Greenville, of the state board of health Norfolk Va was selected as the place of meeting for 1917, and the following officers were elected president, Dr Kirkland Ruffin, Norfolk, Va , vice presidents, Drs Joseph L Spruill, Columbia, N C , Robert L Payne, Jr , Norfolk, Va , Ira M Hardy, Kinston, N C , and Rufus L Raiford Sedley, Va , secretary Dr Clarence Porter Jones Newport News, Va , and treasurer, Dr George A Caton Newbern, N C

Baby Week for 1917—Stimulated by the success of Baby Week last year, the Children s Bureau U S Department of Labor, is making plans for a bigger and better Baby Week for 1917 The bureau and the General Federation of Women s Clubs have agreed on the week beginning May 1 as the time most generally suited for the event, and urge that this week be adopted wherever local conditions permit An effort will be made to have the welfare work incident to the week extended so as to cover all children still at home with their mothers and not limit the work to the period of infancy only Stress is laid on the fact that well-cared-for and healthy mothers are necessary for the health and happiness of babies and the importance of protecting the mother particularly during pregnancy and the lying-in period will be urged Caution is given that in communities where infantile paralysis has been epidemic, all features should be omitted that might bring susceptible children together but attention is called to the fact that Baby Week may well be so planned as to afford an excellent opportunity for giving information as to the proper physical training of children with paralyzed muscles Persons interested in the planning and management of a Baby

Week can obtain without cost a bulletin on the subject, by applying to the Children's Bureau Washington, D C

Bequests and Donations—The following bequests and donations have recently been announced

Goshen (N Y) Emergency Hospital $10 000 by the will of Harry W Van Cortland

St Christopher s Hospital for Babies Brooklyn N Y, $87,103 by the will of Harrison Pownal Wallis

Sanatorium for members of the International Ladies Garment Workers Union suffering with tuberculosis property valued at $75 000 donated by Miss Martha Hentschel Kingston N Y

Pennsylvania Hospital Philadelphia $5 000 Society for Organized Charity $5 000 Bryn Mawr Hospital Philadelphia Hospital for Women Frederick Douglass Hospital Lying In Hospital Philadelphia Children s Aid Society Friends Insane Hospital and Oncologic Hospital each $2 000 by the will of Joshua L Bailey

Germantown (Pa) Dispensary and Hospital, $100,000 by the will of Mrs Mary Warden Harkness

Long Island College Hospital Brooklyn N Y bonds of the market value of $50 000, a bequest from Dr John A McCorkle

Public Nurse Association Peoria Ill a donation of $1 000 by Trustees of the Proctor Endowment

United Hebrew Charities Montefiore Home German Hospital and Mount Sinai Hospital New York each $1 445 by the will of William Josephy

The Association for Improving the Condition of the Poor St Luke s and the Presbyterian Hospital New York each $100 000 by the will of Harris C Fahnestock A legacy of $100 000 was also paid to the Post Graduate Hospital by the decedent just before his death

Polyclinic Hospital New York $47 767 the Association for Improving the Condition of the Poor the New York Skin and Cancer Hospital and the Laboratory for Surgical Research of New York University each $25 883 by the will of Mrs M P Draper

Jewish Foster Home Philadelphia United Hebrew Charities Jewish Hospital and Philadelphia Jewish Sanatorium for Consumptives each $500 by the will of Mrs Bertha Rosshan

Philadelphia Home for Incurables Home for Consumptives Samaritan Hospital Presbyterian Hospital and Children s Homeopathic Hospital each $5 000 by the will of John T Martin, Philadelphia, the bequest payable after the death of his widow

FOREIGN

Epidemics in Sonora—At Uics in the state of Sonora, 160 miles south of the Mexican border it was reported December 18, that smallpox in virulent form and a mysterious fever believed to be typhus had caused more than 500 deaths in the previous four weeks An epidemic was also said to exist in the Alamosa district Quarantine was said to be in force in the affected districts

Import Prohibition on Alcohol—By a decree of Dec 22, 1916, according to *Commerce Reports*, Dec 28, 1916, the French government has prohibited the importation of alcohol and certain alcoholic beverages of foreign origin into France and Algiers The prohibition is not applicable to shipments for government account for storage and reexport, or for chemical and pharmaceutical purposes

Conservation of Mineral Springs—By a decree issued by the president of Peru the exploitation of all mineral springs in that country will be under the direction of the public health department (*Commerce Reports* Dec 22, 1916) The department will disseminate information on the curative properties of the native mineral waters and prevent the misuse of the springs and will take charge of the baths and depots where the waters are taken

Plague in India—Rev Henry Fairbanks, Ahmednager, India reports that bubonic plague has been increasing for three months or more and is more severe than has been noticed for several years Cats and rats were reported to be dying in many parts of the city and the people fled panic stricken and died elsewhere spreading the disease Dr Ruth P Hume has started a campaign of inoculation, and with Dr Lester H Beals of Satara, has already inoculated 14 000 persons

Sanitation in Shanghai—The city of Shanghai is only partially supplied with modern methods of sewage disposal Only the French section it is said, is provided with septic vaults and other improvements The other portions of the city still cling to the old methods on account of the commercial value of waste products According to *Commerce Reports* Dec 27, 1916, the matter of modernizing the disposal of sewage for the whole city is under discussion, due largely to the increased cost of cleaning vaults, which is said to be almost prohibitive

Chemical Industry in Russia—The chemical industry in Russia has received great impetus from the war and according to *Commerce Reports* Dec 23, 1916, a number of works have already been erected and many others are projected Among them is a formaldehyd factory at Vetluga, and a technical laboratory for the production of lanolin, naphthalene, etc, at Rostov A large company has been formed at Moscow for the production of coke-benzol products and at Tomsk a chemical factory is projected for the making of medical chemicals Several new works for making sulphuric acid have been erected in the Volga region, in the Donets basin, in the Caucasus and in the Urals Mirrors, lenses and other optical instruments, thermometer tubing and chemical glass, formerly imported, are now being made There is a large demand for microscopes and other scientific apparatus, as well as for articles for medical and surgical use

LONDON LETTER

London, Dec 11, 1916

The State Treatment of Venereal Diseases

This subject has already been described in The Journal Progress is being made in most parts of the country with the schemes for providing additional facilities for diagnosis and treatment, in accordance with the recommendations of the royal commission, which have been adopted by the government The Portsmouth scheme has already been described For East Sussex it is intended to provide further clinics An early start will probably be made with the new work at Addenbrooke's Hospital at Cambridge The Norfolk and Norwich Hospital at Norwich is also early in the field, and arrangements for the establishment of a treatment center are being made with the local county councils In the West Riding of Yorkshire it is proposed to establish in the first instance treatment centers at Sheffield, Leeds and Bradford, and in due course to extend the scheme so as to include some of the smaller hospitals in the county Negotiations between the municipalities of Birmingham, Liverpool and Manchester, and the large hospitals in those towns are proceeding In the case of some of the small rural counties it has been found impracticable to arrange for suitable treatment at any institution in the county, arrangements will have to be made with the nearest available hospital outside the county Thus in the case of Westmorland the county council intends to use the Manchester Royal Infirmary, and patients in need of special treatment will have to undertake the journey to that city

The London County Council Public Health Committee has prepared a scheme for the metropolitan area It is to come into operation January 1, and will extend to the areas bordering on the county Associated with it are the county councils of Buckingham, Essex, Hertford Middlesex, Surrey and Kent, and the borough councils of Croydon, East Ham and West Ham Arrangements for diagnosis and treatment and the provision of laboratory facilities have been made with the principal London hospitals The services will include the appointment of a committee of the hospital staff to draft a scheme for carrying out the special work at the hospital relating to the diagnosis and treatment of venereal disease, and to organize and superintend the arrangements within the hospitals, the appointment of a competent staff, the provision of beds for the patients, the treatment of outpatients at evening clinics at other suitable times, the supply by the hospital of salvarsan or its substitutes on an approved list, the supply to physicians of apparatus for taking specimens, and the furnishing of them with reports, the examination of specimens sent by physicians, the supply of statistical information of work done, the provision of free instruction for physicians and students, opportunities for physicians to act as clinical assistants at approved rates of remuneration, the employment of women physicians in clinics for women and the issue of printed instructions for the guidance of patients and physicians The hospital will receive payments in respect of (*a*) the work of the treatment center, including the supply of salvarsan or approved substitutes and any pathologic examinations of specimens, and (*b*) the pathologic examination of specimens sent to the hospitals by physicians in the areas of the various authorities These payments will amount in 1917 to $167 000, of which London s share will be $97,750 The cost of the supply of drugs to London physicians during the first year is estimated not to exceed $250,000 To this must be added the cost of supplying salvarsan or its approved substitutes to poor law infirmaries and district and poor law medical officers, amounting to about $37,500, making a total of $137,500 It appears to the committee that any scheme for dealing with the disease would be incomplete unless supplemented by instructional lectures and the publication of information, and it has therefore included a sum for this purpose in the estimate of expediture

At the London Hospital the scheme will be in full operation, January 1 In consideration of the payment of $15,C00 a year by the London County Council, the hospital will provide treatment for all patients with venereal diseases coming from the areas of the participating authorities The arrangements will consist of two parts 1 A department for the treatment of genito-urinary diseases, the hospital will provide four sessions a week, two for men and two for women, the sessions for men to remain open until 7 p m The hospital will appoint two clinical assistants, one senior and one junior the latter to be increased if necessary by the appointment as far as possible of local general physicians 2 A department for the treatment of syphilis, in which, in addition to the ordinary outpatient treatment, salvarsan or approved substitutes will be administered The hospital will appoint an additional assistant The hospital will allot fifteen beds for the purpose of treating syphilis, and a certain number of beds for genito-urinary diseases To insure secrecy the ward system will not be adopted each patient being provided with a bed in a room occupied solely by him The hospital will make arrangements for the examination of specimens sent by physicians in the participating areas whose patients do not attend the hospital

The Work of the Research Committee

The second annual report of the Medical Research Committee appointed under the national health insurance scheme has been issued A great deal of useful work has been accomplished The needs of a nation at war have been kept in view The work in connection with the war began with the help given to the army by the statistical department in compiling army medical statistics A card index has been made for all military hospitals in the United Kingdom now numbering over 2 000, and a similar index for stations and hospitals abroad is in progress of construction This work, when completed, will serve a national purpose of the highest importance, wholly additional to its immediate military and scientific value For many years after the conclusion of peace claims for pensions or allowance must be expected to be advanced by men not invalided from the forces during service, or by their kinsmen or relatives These claims will be based on disabilities alleged to be due to wounds or sickness on active service, and the only means of tracing the accuracy of statements made in support of these future claims will be the card index now being compiled from the hospital records It is understood that huge financial loss has been sustained by the American government in consequence of the incompleteness of contemporary records during the stages of the Civil War

Treatment of Wounds

Striking results have attended the study of wound infections and their treatment in the field and hospital The idea that the dirty and often extensive wounds of warfare can be cleansed as a routine surgical procedure by the direct application of a strong antiseptic has been abandoned Treatment of wounds is now directed to the facilitation of the physiologic processes of the body, on which Wright laid stress, by surgical methods for securing drainage and by irrigation methods of maintaining it, and of combating the invading organisms Surgical testimony is still divided on the respective values of Wright s treatment by salt solutions alone without antiseptics, on the one hand, and, on the other, treatment by irrigation with Dakin's hypochlorite solutions though both methods now are widely applied The use of salt or of hypochlorite solutions both of which are very cheap as compared to other antiseptics, has led to a great saving in hospital expenditure Much work has been done on the properties of many old and new poisonous gases with a view to improving the means of their ready detection and identification, the methods of protection against them, and of antidotal and other modes of treatment in cases of poisoning Reference is made to the success of the preventive measures adopted in Egypt against the infection of the troops with bilharziasis From 80 to 90 per cent of the natives in the Nile delta are known to be affected by this disease for which no cure is known when the worm is once established in the blood of its human host Some idea of the immensity of the national interest in this disease and in its adequate control at the present time in Egypt, may be gained from the statement that of the men infected with bilharziasis during the South African War, 359 were still receiving "conditional pensions" in 1911 at a cost to the state of about $32 000 per annum exclusive of those already permanently pensioned

Clinical Facilities for Women

The subcommittee of the Academic Council on Medical Education of Women in the University of London has just issued a report On the further provision of clinical facilities for women students in London, it is stated that no anxiety need be felt about teaching men and women together, though the deans of the various schools have supported the idea that the men students would object to the presence of women students The reasons generally given for this are (*a*) Women are keener in their work and take the front places at demonstrations and obtain an unfair share of clinical opportunities, (*b*) women are unable to contribute to the athletic life of the school The committee is of opinion that no valid objection can be maintained against the system of coeducation for men and women medical students and that this is the only system by which the general policy of the University of London can be effectively carried out The subcommittee considers that the facilities for the medical education of women would not be adequate in any hospital or medical school unless resident medical and surgical appointments are open to men and women on equal terms and it hopes that these facilities will be provided in some of the schools of the university at no distant date In October, 1916, 127 students entered the London School of Medicine for Women, twenty women entered at Charing Cross Hospital Medical School and King's College, making a total of 157 women students in London Of these, 115 are in their first year

The Professorial Board of University College, London has reported on the foregoing report, and while agreeing with it in many respects differs in-others For example, it is stated that 'if women were admitted to only a few schools, there is reason to believe that those schools would lose men students and would become mainly schools for women" The board therefore, which had been urged to open the anatomy department at University College to women recommends 'That the question of admitting women to the department of anatomy be deferred until adequate provision of clinical facilities for women students in London has been made and until it is possible to provide suitable accommodation for them"

PARIS LETTER

Paris, Dec 7, 1916

The War

PROTECTION OF MATERNITY DURING THE SECOND YEAR OF WAR

Last year Dr Pinard formerly professor of clinical obstetrics at the Faculte de medecine de Paris, communicated to the Academie de medecine statistics showing that protection of maternity and of the new-born in Paris had been so well effected during the period 1914-1915 that the mortality under these two heads was actually lower than in the preceding periods, which is the reverse of what previous war time experience would lead us to expect These happy results were due chiefly to the particular attention paid to the mothers and children by the Assistance publique (The Journal March 20, 1915, p 1010) Recently Pinard reported to the Academie results in Paris for the second year of war Of 26 179 births registered in Paris 95 per cent were attended by agents of the Assistance publique While the measures of protection have remained the same during the past year the results have been less satisfactory The number of stillbirths fell from 7 69 to 6 63 per cent., the number of children nursed by wetnurses from 31 to 13 55 per cent , mortality of mothers from 0 64 to 0 46 per cent and desertion of infants from 4 98 to 2 88 per cent In the second period these figures rose again, being, respectively for 1916, 7 67, 22 0 48 and 5 21 per cent On the other hand, infant mortality has remained practically stationary for the first year of life, but has increased for the second year The cause of this increase is found in infectious diseases particularly measles and whooping cough The increase in the number of abandoned and premature children, the diminution in the average weight of the new-born and the decrease in the number of meals served by the maternity canteens to nursing mothers have an economic cause which Pinard points out as the presence of pregnant and nursing women in ammunition factories These women are unaware of the danger to themselves and of the risks to which they expose their children Pinard therefore demands that employment at these factories should be forbidden every pregnant woman, every woman nursing a child and every woman who has been confined within six months

THE URGENT SURGERY OF LUNG WOUNDS

Dr Pierre Duval of the Faculte de medecine de Paris and surgeon of the hospitals, recently reported to the Societe de chirurgie de Paris fourteen cases of urgent operation for wounds of the lung All of these operations were performed to arrest a pulmonary hemorrhage threatening the life of the patient, or for the relief of serious asphyxia They were, therefore, operations of extreme urgency performed on patients in imminent danger These observations show the value of this intervention, for of the fourteen patients, ten were cured The technic employed was that devised by Duval resection of a single rib wide opening of the pleura, suturing of the wounds by deep hemostatic sutures, drying of the pleura and suture of the thoracic wall In such cases the projectile is removed only if easily found

MEDICAL ASSISTANCE TO DISCHARGED SOLDIERS

The minister of the interior has appointed a commission to study means of securing medical and pharmaceutical assistance or hospital accommodation for soldiers discharged for wounds or illness contracted or aggravated while with the colors

THE AMERICAN MEDICAL DETACHMENT WITH THE ARMY

A number of Americans who have devoted themselves to the service of our wounded have collected their souvenirs in a volume which has just been published under the name of Friends of France The preface of this is written by Mr A Piatt Andrew, inspector general of the American medical sections

ALTERNATING USE OF ANTISEPTICS

Dr Charles Richet professor of physiology of the Faculte de medecine de Paris recommends that surgeons alternate one antiseptic with another in the treatment of infected wounds in order to avoid the possibility of germs becoming habituated to poisons In a communication to the Academie des sciences, Dr Richet divides antiseptics into four groups (1) oxidizing agents (hypochlorites hypobromites, iodin chlorin, hydrogen peroxid, ozone, potassium permanganate, etc), (2) compounds of heavy metals (salts of mercury, silver, copper zinc, etc), (3) substances belonging to the aromatic series (phenols, salicylates, thymol, naphthol, creosote, etc), and (4) miscellaneous products (formic aldehyd chloroform, chloral, essential oils fluorids, boric acid, etc) One may thus employ an antiseptic of the first group on the first day one of the second group on the second day, and so on In these conditions the microbes do not have an opportunity to develop immunity to the antiseptic, and the results obtained are much better

EAR DISEASES AND THE WAR

Affections of the ear are frequent in the army, and take up much of the time of military surgeons Dr J Moliniè has made a report on this subject to the Reunion medicale de la I-ere armee He groups the cases in three categories (1) diseases contracted while with the army, (2) lesions caused by engines of war,' and (3) exacerbations or aggravations of chronic affections Ear diseases contracted in the army constitute 21 per cent of the whole number The most common of these is acute otitis media following affections of the upper respiratory passages fevers and infectious diseases From 7 to 8 per cent of these cases are accompanied by mastoiditis This condition is almost invariably cured in from three to six weeks, and the patient is able to resume his service The lesions caused by 'war engines" constitute about 28 per cent The external ear is occasionally injured, but it is usually the middle ear which suffers Unilateral or bilateral perforation of the tympanum is frequent The ossicles are occasionally dislocated Traumatic perforation of the tympanum is characterized by the presence of a narrow hemorrhagic border The treatment is plugging of the external meatus with antiseptic cotton The loss of hearing is slight, and the patient is soon fit to resume his service Deafness from shock is less frequent than that due to traumatic perforation As a rule, it amounts to little more than a kind of auditory 'dazzling' which disappears completely with time True and persistent lesions of the labyrinth are an exception The most intractable cases of shock deafness are of psychic origin and are not infrequently simulated The auditory-palpebral reflex is of value in the differential diagnosis of these different conditions These cases of shock deafness are becoming more and more numerous with the increasing use of heavy artillery Their numbers are, in a certain sense, an index of the fluctuations in the struggle It will be possible to reduce these numbers by protecting the ear of the combatant, either by means of a flapped cap worn under the helmet, or by a metallic ear protector attached to the helmet and capable of being lowered or raised at will Of the ear diseases among soldiers calling for treatment, 51 per cent are chronic affections either aggravated or exacerbated This group is practically evenly divided between chronic suppurative otitis media, and chronic deafness The prevalence of the former has been the occasion of a new regulation to the effect that intermittent suppurations must be treated at the front if the lesions are limited to the middle ear But these new regulations cannot become effectual, unless the patient can be seen by a specialist who will decide whether his case falls within their scope Chronic deafness is often attributed by the patient to the noise of the cannon There is practically never any improvement from treatment in these cases, and the specialist's task is limited to formulating an opinion as to the military fitness of the patient In forming judgment on this, it is not sufficient to take into consideration an estimate of the acuity of the hearing as tested in the usual way For this special purpose it is necessary to allow for certain compensations, natural or artificial, of slight deafness The extent of compensation can be judged only by a careful observation of the patient in the ordinary surroundings of his life Further, the specialist has to bear in mind that there are occupations in the army for which his patient may be suitable in other respects and which do not require acute hearing

Turning now to war victims suffering from total bilateral deafness, the method of reeducation by lip reading appears to give excellent results This system is being generalized in all centers in the interior of the country With regard to complete deafness, the important problem presents itself of differentiating between pathologic conditions and malingering It is now well ascertained that in addition to complete deafness dependent on organic lesions, there are other genuine cases in which no morphologic change can be demonstrated Differential diagnosis acquires especial importance because of the difference in prognosis in the two cases For this reason it is necessary to employ the most precise scientific methods to eliminate as far as possible every source of error, and, in particular, that which may be due to insincerity of the patient In this connection it appears likely that investigation of the ocular and vasomotor reflexes under a purely auditory stimulus should offer the surest guarantees The number of patients suffering from ear discharges is considerable, and constitutes a heavy burden on the specialists It is the practice at present to retain patients suffering from chronic otorrhea with the army This is in correlation with the fact that for the most part ear trouble has never interfered with work in civil life It is, of course, necessary to give these patients treatment for a few days Such a treatment properly applied occasionally leads to complete cure In the absence of complications calling for mastoid operation, ear discharge is not considered incompatible with service in the army

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Marriages

Victor Luman Rocho, M D, Woodburn, Ore, to Miss Ruby Esther Francis of Oregon City, Ore, December 14

Theodore Livingston Chase, M D, to Agnes Barr, M D, both of Philadelphia, in New York, December 6

Kent Edward Darrow, M D, Fargo, N D, to Miss Cora Belle Hodgson of Gardner, N D, December 2

Blaine Augustus Young, M D, Merriman, Neb, to Miss Edith C Barnes of Cody, Neb, December 24

James Alphonso Taylor, M D, to Miss Jessie Craven both of Montpelier, Ind, December 22

Charles Edward Scharf, M D, to Miss Grace Elizabeth Mullin, both of Chicago, November 30

Edwin Everett Jack, M D, Boston, to Miss Mary J Denny of Brookline, Mass, December 11

William John Gatti, M D, to Miss Rose Wery, both of Punxsutawney, Pa, November 15

Stephen Hurt Watts, M D, University, Va, to Miss Sarah Tilt of Atlanta, Ga, December 21

Norman Dixon Curry, M D, to Miss Neal Jelleneoux, both of Chicago, in October

John McCoy, M D, to Miss Florence A Riley, both of New York, December 8

Deaths

Claude Lamont Wheeler, M D, New York, McGill University, Montreal, 1889, aged 52, died at his home in Brooklyn, December 30, from pneumonia Dr Wheeler was for many years assistant editor of the *New York Medical Journal* under the late Dr Frank P Foster, and succeeded the latter in the editorship of the journal

Holliday H Hayden, M D, Baltimore, College of Physicians and Surgeons, Baltimore, 1892, aged 47, a Fellow of the American Medical Association, demonstrator of anatomy and clinical medicine in his alma mater, later associate professor of applied anatomy in the University of Maryland, vaccine physician of Baltimore, died at his home, December 20

William Francis Skinner, M D, Chambersburg, Pa , Jefferson Medical College, 1890, aged 48, a Fellow of the American Medical Association, president of the Cumberland Valley Medical Association in 1913, a member of the staff of the Chambersburg Hospital, coroner of Franklin County, died at his home, December 18

Richard M Thomas, M D, Greensburg, Ind , Medical College of Ohio, Cincinnati, 1883, aged 58, a member of the Indiana State Medical Association, local surgeon for the Big Four System, died in the Good Samaritan Hospital, Cincinnati, December 17, after a surgical operation

William F Smith, M D, Glenn Springs, S C , University of Pennsylvania, Philadelphia, 1861, aged 82, for more than a half century a practitioner of Spartanburg County, S C , surgeon in the Confederate service during the Civil War, died at his home, December 3

J Thomas Nunnally, M D, Griffin, Ga , Memphis Hospital Medical College, Memphis, Tenn , 1894, aged 45, formerly a Fellow of the American Medical Association, a member of the Tennessee State Medical Association, died at his home, December 15, from nephritis

T M Cherry, M D, Norton, Va , College of Physicians and Surgeons, Baltimore, 1891, aged 54, a Fellow of the American Medical Association, a well known practitioner of southwest Virginia, died at his home, December 11, from cerebral hemorrhage

Carter E Damrell, M D, Tulsa, Okla , Central Medical College, St Joseph, Mo, 1898, aged 42, for eight years health officer of Enid and Garfield County, Okla , died at the home of his father-in-law in Enid, December 17, from organic heart disease

George W Bailey, M D, Philadelphia, University of Pennsylvania, 1868, aged 76, who gave up his practice twenty-two years ago to devote his time to Sunday school work, died in a sanatorium at Battle Creek, Mich , December 19, from disease of the kidney

Emory Oliver Onion, M D, Summum, Ill , Keokuk (Iowa) Medical College, 1906, aged 38, a Fellow of the American Medical Association, died, December 16, in the Macomb (Ill) Hospital, where he had been under treatment for tuberculosis

James Lawrence Sullivan, M D, Bridgeport, Conn , College of Physicians and Surgeons, Baltimore, 1901, aged 42, a member of the Connecticut State Medical Society, died in St Vincent's Hospital, Bridgeport, August 12, from Hodgkin's disease

Lee B Harvey, M D, Colville, Wash , Marion-Sims College of Medicine, St Louis 1900, aged 48, a member of the Washington State Medical Association, mayor of Colville from 1900 to 1909, died at his home, December 16, from acute nephritis

Milton Oscar Stemmler, M D, Myrtle Point, Ore , Marion-Sims College of Medicine St Louis 1900, aged 45, formerly a member of the Oregon State Medical Association, died in Mercy Hospital, North Bend, Ore , December 14 from typhoid fever

Frederick Frelinghuysen Coleman, M D, Asbury Park, N J , New York University, New York, 1893, aged 52, a graduate in pharmacy, died at a private sanatorium in Stamford, Conn , November 27, from disease of the brain

Charles Henry Linley, M D, Atchison, Kan , Miami Medical College, Cincinnati, 1877, formerly a member of the Kansas Medical Society, a resident of Atchison for half a century, died suddenly in that city, December 20

Howard Edwin Hiestand, M D, Kenton Ohio, Medical College of Ohio, Cincinnati, 1884, aged 58, a member of the Ohio State Medical Association, died in Grant Hospital, Columbus, December 15, from myocarditis

Richard Biddle Faulkner, M D, Pittsburgh, College of Physicians and Surgeons in the City of New York, 1875, aged 63, formerly a Fellow of the American Medical Association, died at his home, December 20

William John Coates, M D, New York, New York University, New York, 1882, aged 59, dean of the College of Veterinary Surgery of New York University, died at his home, December 19, from diabetes

Samuel L Cochran, M D, Louisville, Ky , Louisville (Ky) Medical College, 1893, aged 61, formerly professor of anatomy and physiology in his alma mater, died at his home, December 18 from pneumonia

James Joseph Walsh, M D, Olyphant, Pa , Jefferson Medical College, 1911, aged 29, a member of the Medical Society of the State of Pennsylvania, died at his home in Scranton, recently, from diphtheria

James Dorland, M D, Dorland, Ont , McGill University, Montreal, 1875, aged 64, formerly a practitioner of Milwaukee, Wis , and Chicago, died at his home, December 10, from cerebral hemorrhage

David C Knott, M D, Plymouth, Ind , Eclectic Medical Institute, Cincinnati, 1882, aged 59, a Fellow of the American Medical Association, died at his home, November 8, from angina pectoris

James E Lay, M D, Hallettsville, Texas, Tulane University, New Orleans 1868, aged 73, a Fellow of the American Medical Association, a Confederate veteran, died at his home, December 13

William David Hollmers, M D, Chicago College of Physicians and Surgeons, Chicago, 1915, an intern in Cook County Hospital, Chicago, died in that institution, December 23, from typhoid fever

Josaphat A Gaucher, M D, Putnam, Conn , Baltimore Medical College, 1912, aged 26, a Fellow of the American Medical Association, died at his home, December 17, from lobar pneumonia

Wesley R Churchill, M D, Reedsburg, Wis , Hahnemann Medical College, Chicago, 1874, aged 71, a specialist on diseases of children, died at his home, December 7, from pneumonia

Warren Bateman Brown, M D, Richmond, Calif , Starling Medical College, Columbus, Ohio, 1888, aged 54, founder of the first newspaper in Richmond, died at his home, December 10

John Beach Knapp, M D, New York, College of Physicians and Surgeons in the City of New York, 1875, died in St Luke's Hospital, December 18, from postoperative pneumonia

Elery Channing Webster, M D, Marion, Ind , Eclectic Medical Institute, Cincinnati, 1868, aged 72, died at his home December 17, from cerebral hemorrhage

John Leonidas Murray, M D, Lexington, Tenn , Vanderbilt University, Nashville, Tenn , 1874, aged 74, a veteran of the Civil War, died at his home, December 8

Frederick Haskins, M D, Neosho, Mo , Ensworth Medical College, St Joseph, Mo, 1903, aged 54, died in St Joseph, Mo , December 17, from pneumonia

Francis Mason Hayes, M D, Buffalo, New York University, New York, 1887, aged 63, died in Lewiston, N Y, December 10, from pneumonia

Charles E Bennett, M D, Cortland, N Y , Syracuse, N Y, University, 1880, aged 58, died in the Cortland Hospital, November 30, from septicemia

W L Hayne, M D, Mallorysville, Ga , Georgia College of Eclectic Medicine and Surgery, Atlanta, 1889, aged 63, died at his home, December 4

Joseph D Boggs, M D, Norborne, Mo , Kansas City, Mo, Medical College, 1886, aged 82, died at his home, December 3, from nephritis

Frank W Le Fevre, M D, Portland, Ore , Cleveland University of Medicine and Surgery, 1885, aged 59, died at his home, December 2

Justin D Root, M D, Brandon, Wis , Hahnemann Medical College, Chicago, 1884, aged 58, died at his home, November 21

James W Grisard, M D, Winchester, Tenn , University of Nashville, Tenn , 1870, aged 68, died at his home, December 7

D Tonjes Krudop, M D, Los Angeles, Hahnemann Medical College, Chicago, 1888, died recently at his home

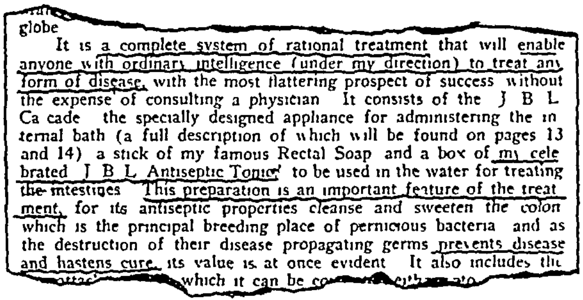
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE J B L CASCADE TREATMENT

The Commercial Possibilities in Rectal Enemas

"The J B L Cascade Treatment" is exploited by one Charles A Tyrrell of New York City It consists in the self-administration of rectal enemas—containing a "patent medicine" sold by Tyrrell—by means of a rectal syringe known as the J B L ('Joy-Beauty-Life') Cascade



globe

It is a complete system of rational treatment that will enable anyone with ordinary intelligence (under my direction) to treat any form of disease, with the most flattering prospect of success without the expense of consulting a physician It consists of the J B L Cascade the specially designed appliance for administering the internal bath (a full description of which will be found on pages 13 and 14) a stick of my famous Rectal Soap and a box of my celebrated J B L Antiseptic Tonic' to be used in the water for treating the intestines This preparation is an important feature of the treatment, for its antiseptic properties cleanse and sweeten the colon which is the principal breeding place of pernicious bacteria and as the destruction of their disease propagating germs prevents disease and hastens cure, its value is at once evident It also includes the which it can be

Photographic reproduction (reduced) of a portion of a page of the booklet sent out by Tyrrell to those who answer his advertisements Imagine a person of ordinary intelligence attempting to treat diphtheria smallpox cancer consumption, Bright s disease etc (any form of disease') with Tyrrell s complete system consisting of a rectal syringe a stick of soap and a teaspoonful of salt and borax in water'

Before discussing the J B L Cascade treatment, it is well to give the reader some facts which, while incidental have a bearing on the subject and will aid in giving a truer perspective of the business under discussion Tyrrell according to our records, was born in 1843 He received a diploma from the Eclectic Medical College New York, in 1900—when he was 57 years old! In addition to the *J B L Cascade treatment*, Tyrrell was president of the concern that exploited the "Ideal Sight Restorer,' sold as a cure for most eye ills This has been advertised under such claims as cures not only the refractive errors of the eye—nearsight farsight oldsight and astigmatism—but also such dreaded diseases as cataract, glaucoma, cross-eye and paralytic blindness" The Ideal Sight Restorer was a piece of tubing with a rubber bulb attached for the purpose of producing a partial vacuum over the eyeballs The disasters that might result from the indiscriminate use of an appliance of this sort in certain diseased conditions of the eye are more obvious to physicians than to the public In advertising this "eye cure" the concern sent out what was claimed to be "an unprejudiced journalistic opinion" from the *United States Health Reports* This publication, which was presumably named so as to mislead the public into believing it was a government bulletin was, to quote from a government report, a fraudulent advertising concern which wrote editorial endorsements for any disreputable institution for a cash consideration" In addition to this sort of testimony for the 'Ideal Sight Restorer," there were also reports from professional testimonial writers

Tyrrell has also appeared in the role of publisher and "editor-in-chief' of a quasi-medical magazine *Health*, issued from the same address as the 'Ideal Sight Restorer" and the "J B L Cascade" He had for associate editor" C S Carr, the quack, who for years was connected with the Peruna concern, and who also exploited a mail-order medical concern of his own The advertising pages of *Health* in addition to giving large space to the "Ideal Sight Restorer," the "J B L Cascade treatment" and Carr's mail-order concern reeked with frauds Brinkler, the "Food Expert,' the make-you-tall "Cartilage Co," the Actina eye-and-ear-cure, the Okola eye-cure the O ydonor swindle and the notorious New York Institute of Science—all of which have been officially stamped as frauds by the United States authorities and denied the use of the United States mails—found haven in the pages of *Health* These facts are given that our readers may get some conception of Tyrrell s business ethics and also for the information of those publishers who have opened the advertising pages of their magazines to the Tyrrell "treatment"

THE "J B L CASCADE'

Tyrrell claims to be the inventor of the J B L Cascade The public is asked to believe that he, "after several years of patient experimenting succeeded in perfecting the appliance that bears his name" Elsewhere Tyrrell declares "I have invented an apparatus the J B L Cascade" What are the facts? According to the United States patent records one Henry M Guild invented the device which was patented in 1903 Guild also invented and obtained an additional patent on a modified form of the device in 1904 Both of these patents were assigned to the Tyrrell concern the first by Guild himself and the second by Guild s executor So much for Tyrrell s claim that he is an inventor!

The J B L Cascade consists essentially of a rubber bag shaped like a typical rubber hot-water bottle A hard rubber injection point is fastened on one of the flat sides To operate the device the rubber bag is filled with the 'J B L Antiseptic Tonic" solution—of which more later—the point is then inserted in the anus and the weight of the body on the bag forces the liquid into the rectum In its essentials the device is virtually the same as one that was patented in Canada in 1892 and in the United States in 1894 by one Joseph Lalonde, a British subject who lived in Winnipeg

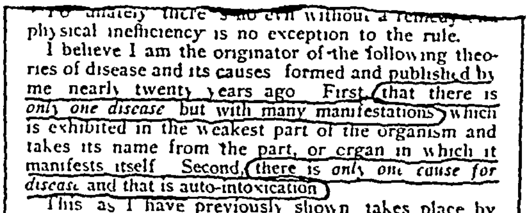
TYRRELL'S KEY-NOTE THEORY

Tyrrell claims to have originated a theory of "disease and its causes" Whether the "theory" was devised as a convenient accessory to his exploitation of the "Cascade" and the "patent medicine' that goes with it, or whether it is merely an indication of stupendous ignorance makes little difference, it is bizarre and fantastic to the point of silliness Here it is

> There is ONLY ONE DISEASE but with many manifestations
> There is ONLY ONE CAUSE FOR DISEASE and that is auto intoxication '

But Tyrrell s theory is no more preposterous than the claims *he has made for his J B L Cascade treatment For instance*

> It enables any one with ordinary intelligence (under my direction) to treat successfully any form of disease that is curable '



physical inefficiency is no exception to the rule.

I believe I am the originator of the following theories of disease and its causes formed and published by me nearly twenty years ago First, that there is *only one disease* but with many manifestations which is exhibited in the weakest part of the organism and takes its name from the part, or organ in which it manifests itself Second, there is *only one cause for disease* and that is auto-intoxication

This as I have previously shown takes place by absorption through the walls of the intestinal canal disregard of natural law For

Photographic reproduction (reduced) of part of a page of one of Tyrrell s booklets Here he gives his theory of disease and its causes

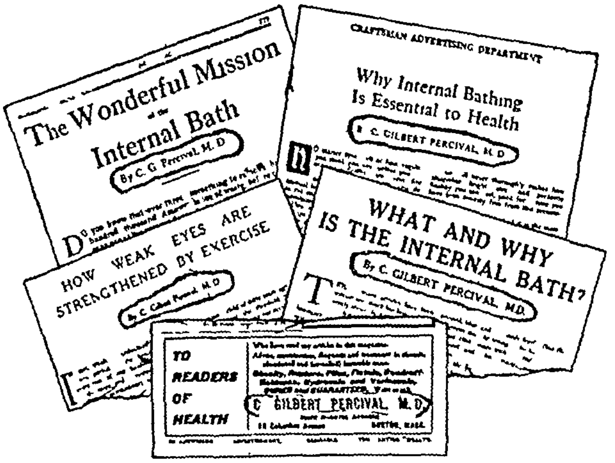
> No matter of how long standing your trouble may be if there is a possibility of cure, this treatment will effect it
> *It is the greatest preservative of health ever known'*
> a system of treatment that will both cure and prevent disease
> My system of treatment should be used by every one whether in sickness or health

These are but a few of the claims that Tyrrell has made at various times for his "treatment '

THE INFERENTIAL UNTRUTH

The Propaganda Department has received scores of inquiries regarding the J B L Cascade treatment Some of these have come from publishers who make some attempt to censor their advertising pages The various absurd claims made by Tyrrell have been pointed out to these publishers Coincidently with these criticsms the Tyrrell advertising has become not more honest but more cautious To illustrate some of the minor modifications in which the direct has given way to the inferential falsehood, we quote in parallels, italicizing to make the comparison clear

OLDER CLAIMS	NEWER CLAIM
I have *cured* thousands "	'I have *benefited* thousands "
my method of *curing* and preventing disease "	' my method of *treating* and preventing disease "
I cleanse the system thereby removing the cause of *all* disease "	I cleanse the system thereby removing the cause, in my opinion, of *much* disease '
Typhoid fever and Appendicitis *are* positively *cured* by the J B L Cascade Treatment '	Typhoid fever and Appendicitis *may* positively be *relieved* by the J B L Cascade Treatment '



The Wonderful Mission of the Internal Bath
By C. G. Percival, M. D.

Craftsman Advertising Department
Why Internal Bathing Is Essential to Health
C. Gilbert Percival, M. D.

How Weak Eyes Are Strengthened by Exercise
By C. Gilbert Percival, M. D.

What and Why Is the Internal Bath?
By C. Gilbert Percival, M. D.

To Readers of Health
C. Gilbert Percival, M. D.

Greatly reduced photographic reproductions of part of four full page advertisements of Tyrrell s J B L Cascade and Ideal Sight Restorer' These consist of dissertations by one C Gilbert Percival, M D' Percival was one of the associate editors of *Health* a pseudo medical sheet published by Tyrrell We also reproduce one of Percival's own advertisements in which he guaranteed a cure of obesity, rupture piles hydrocele etc Percival has given testimonials also for Absorbine Jr " Somnos" and Lignol Tyrrell used to publish Percival s name among the 'prominent physicians' who used and prescribed the J B L Cascade!

Careful study of the Tyrrell "literature" that has been sent out during the past six or seven years is an education in mail-order quackery True to type, there is a series of "follow up" form letters, so prepared as to lead the uninitiated to think that they are individual communications The first of the series comes "in response to your request" and informs you that the "J B L Cascade Treatment" is, in Tyrrell's judgment, "one of the most common sense and practical methods for preventing and relieving most of the diseases known to the world" Tyrrell emphasizes that those who send money for his "treatment" (which includes a "Cascade," a stick of soap and a box of the marvelous "Antiseptic Tonic") will also be 'entitled to unlimited free consultation" Tyrrell modestly adds that as his "reputation is thoroughly established," the purchaser of the "Cascade" secures for himself 'the constant service of a New York specialist"

The second letter of the series still further carries out the deception of making its recipient believe it to be a personal communication, by being written on professional rather than business stationery In this letter Tyrrell declares that he has taken a personal interest in your case" Of course, most people who receive this letter do not realize that it is a stock letter, sent out as a matter of routine and, in all probability never seen by Tyrrell, except when the original order was given for the printing In the third letter of the follow-up series Tyrrell evinces surprise that the victim has not purchased the "treatment' and incidentally obtained 'the advantage of my able advice" This letter makes certain concessions in the price of the treatment and awaits "your valued favors"

With the first of the letters comes a booklet, one of several that Tyrrell sends out to prospective purchasers of his 'treatment," containing among other material a number of testimonials These testimonials are indexed and in the older books the index was said to be "to Diseases Cured by the J B L Cascade Treatment" In the books now being sent, the index is said to be of "Testimonials Showing the Most Astonishing Results Obtained By the Use of the J B L Cascade," etc The older books alleged that Tyrrell's treatment had cured (*vidè* index of testimonials), among many other diseases, "Brain Fever," Consumption, Change of Life (*sic!*), Dysmenorrhea, Gastritis, "Heart Trouble," Insanity, Paralysis and Scarlet Fever The more recent books do not contain the testimonials alleging cures of the conditions just listed, but they give a list that is sufficiently alluring for those sick or near-sick who are in search of a panacea Thus one can go down the list of alleged cures alphabetically from "appendicitis" through "bladder trouble," "delirium tremens" and 'epilepsy" to "kidney trouble," "malaria," "obesity," "rheumatism" and "stomach trouble"

TESTIMONIALS

Some of the testimonials have a serio comic element in them There is, for instance, a panegyric alleged to have been written by Lewis G Spooner, state senator from Minnesota, whose picture adorns the page on which it appears The senator avers that he considers the J B L Cascade "almighty important to any human being past middle age in life," and he considers that possession of the Cascade and use of the same is almighty important" Lillian Russell, looking out from a bunch of roses, asks "Professor Tyrrell" kindly to send her 'two more Cascades and six boxes of the Antiseptic Powder", she wants to take them to Europe Eva Davenport, 'of the Yankee Consul Co " smilingly testifies to the indispensability of the J B L Cascade, which she finds as a vocalist, "invariably cause clearness and purity of tone," besides being of value "in the reduction of obesity" Anna Held roguishly assures '*Mon Cher* Prof Tyrrell" that she is delighted with the Cascade", in fact, she considers "*c'est magnifique!*" One of the latest testimonials purports to be a photographic reproduction of a letter from one Rev Walter W Kent, Cincinnati This testimonial, unlike the others mentioned, is not illustrated —which is a pity The letter-head explains that Rev Kent is "Chaplain, First Ohio Infantry U S V R," and also 'Ex-President Mount Lookout Business Men's Club" Mr Kent offers his "testamonial" (spelling original) because he would not withhold it from his friends 'I often suffer with nervous headaches from brain fag, like most literary people and thinkers do" says Rev Kent A friendly hint to the reverend gentleman A fulsome testimonial for a quackish device is not likely to enhance one's reputation for being either "literary" or a 'thinker"

THE IDEAL SIGHT RESTORER
WE RESTORE SIGHT!
GLASSES RENDER DEFECTIVE VISION CHRONIC
Write for our ILLUSTRATED TREATISE ON THE EYE Mailed Free
THE IDEAL COMPANY
239 BROADWAY
NEW YORK.

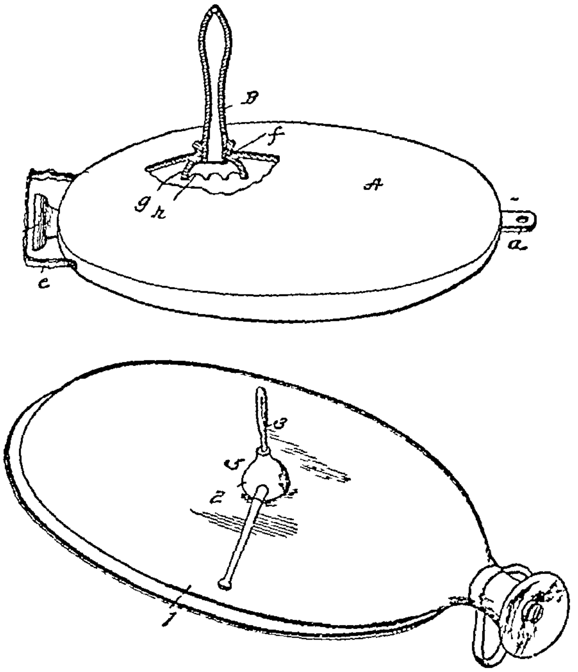
A photographic reproduction (reduced) of an old advertisement of the Ideal Sight Restorer another of Tyrrell s devices

Before leaving the subject of testimonials, reference must be made to a list of physicians published by Tyrrell These men he classes as "distinguished" and "prominent," and claims that they 'both use and prescribe" his "treatment" Investigation shows as might have been expected, that not one of these men can lay claim to being either "prominent" or "distinguished" Professionally, they are nonentities, or worse Some of them are dead, some are apparently not physicians at all, at any rate their names are not to be found in the official records of physicians, one is an ex-"patent medicine" maker, one has advertised 'Obesity, Rupture, Piles Hydrocele and

Varicocele, CURED and GUARANTEED," while others have been commercially connected with Tyrrell and his so-called institute

THE "PATENT MEDICINE" ADJUNCT

Most concerns that sell mechanical devices of a pseudo medical nature have a "patent medicine" as an accessory to the alleged treatment Tyrrell s is no exception His complete treatment" consists in (1) the 'J B L Cascade,' (2) a stick of his famous Rectal Soap" and (3) a box of the Celebrated J B L Antiseptic Tonic" The last is the 'repeater" part of the 'treatment" Tyrrell says regarding the "Antiseptic Tonic"



Tyrrell claims that the J B L Cascade was invented by him The records of the patent office at Washington show that the device was invented and patented by one H M Guild who assigned the patent to the Tyrrell concern The lower of the two devices illustrated above is the Guild instrument—now sold as the J B L Cascade —reproduced from the records of the patent office Tyrrell claims that the J B L Cascade is the only thing of the kind ever specially designed for the purpose for which it is sold the rectal enemas The upper of the two devices illustrated above was invented by a Canadian who obtained a Canadian patent for the device in *1892* and U S patent in *1894*

> This preparation is one of the most important features of the treatment for it attacks and destroys the microbes of disease in their principal breeding place and I cannot too strongly urge the importance of its use for the distruction of these germs prevents disease and hastens a cure'

A woman who had received some of the advertising material sent out by Tyrrell wrote asking why the formula of the 'Antiseptic Tonic" was *not given* Here is what she was told

> Note your comments as to the Antiseptic Tonic and your inquiry as to why we do not give the formula We cannot see any good reason why we should do anything of this kind, and give it to the public in order that they may secure the tonic from the druggist without any profit to ourselves for all time

THE JOURNAL has repeatedly said that the element of secrecy in the 'patent medicine" business is for the purpose of allowing the exploiters of nostrums to make claims that the public would laugh at if it was apprised of the composition of their preparations Tyrrell's "patent medicine" adjunct has been analyzed by the chemists of the American Medical Association Here is the laboratory report

CHEMISTS' REPORT ON THE "ANTISEPTIC TONIC"

J B L Antiseptic Tonic is a dirty white faintly perfumed powder containing small blue particles A 4 ounce package retails for 50 cents Dissolved in water it produces a faintly greenish-blue, turbid solution, having an alkaline reaction to litmus Qualitative tests indicated the presence of a chlorid a borate, sodium, small quantities of calcium and of a sulphate and traces of a nitrate Alkaloids, ammonium salts, free boric acid and salts of copper and zinc were absent

Quantitative determinations indicated that the composition of the specimen examined is essentially as follows

Sodium chlorid (common salt)	69 9 per cent.
Borax	29 6 per cent
Calcium sulphate hydrous (gypsum)	0 5 per cent.
Color and perfume	traces

It seems probable that the gypsum found is not an intentionally added constituent, but that it occurs as an impurity or an adulterant in a cheap grade of borax used in preparing the mixture The insolubility of the gypsum is responsible for the turbidity of the solution

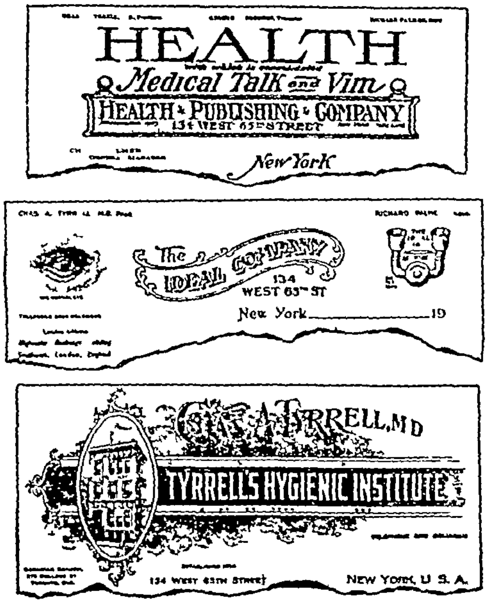
A preparation having all of the "antiseptic" and "tonic" properties of J B L Antiseptic Tonic can be made by mixing 2 8 ounces of salt with 1 2 ounce of ordinary borax at a cost of not to exceed two-thirds of 1 cent

Here, then, we have 2⅘ ounces of table salt mixed with 1⅕ ounce of borax and sold for 50 cents! No wonder Tyrrell "cannot see any good reason" for giving the public the "formula" for his "Antiseptic Tonic" which "attacks and destroys the microbes of disease in their principal breeding place!"

THE TYRRELL ADVERTISING

We have given this much space to a consideration of Tyrrell's brand of quackery because some publications that, in general, show considerable discrimination in the acceptance of advertisements have sold space to the exploiters of the 'J B L Cascade treatment" Correspondence with some of these publications has disclosed an attitude on the subject of quackery that would be laughable if it were not discouraging To the magazines in question "patent medicines," as such are taboo It seems however, that if the alleged "cure" happens to be mechanical rather than chemical in nature, it becomes acceptable, no matter how preposterous the claims made for it may be If the exploiters of the J B L Cascade entirely eliminated from their alleged treatment their salt-and-borax 'patent medicine" accessory, euphemistically referred to as "Antiseptic Tonic," there would still be no valid excuse for accepting the J B L Cascade advertising

The advertisements, "follow-up letters" and other advertising paraphernalia that we have on file, covering several years, show the history of the advertising campaign of the J B L Cascade to have been one of deceit, misrepresentation and quackery While some of the most blatant claims have been modified—due, possibly, to previous criticisms from THE JOURNAL—the advertising still misleads, mispresents and deceives by inference where it does not do it directly In



HEALTH
Medical Talk and Vim
HEALTH PUBLISHING COMPANY
134 WEST 65th STREET
New York

The IDEAL COMPANY
134 WEST 65th ST
New York ____________ 19

CHAS A TYRRELL, M D
TYRRELL'S HYGIENIC INSTITUTE
134 WEST 65TH STREET
NEW YORK, U S. A.

Photographic reproductions of the letterheads of three concerns of which Tyrrell is or has been president *Health* is the name of a fad magazine published by Tyrrell which carried advertisements of various *pseudo medical products* including Tyrrell s own devices the J B L Cascade and the Ideal Sight Restorer spite of this, the attitude of certain otherwise estimable publications seems to be that taken by the *Christian Herald*, for example, of New York, which, after having the facts brought to its attention by a physician, wrote

> We shall continue to carry this advertisement as we are convinced that the system advocated by Dr Tyrrell is of far greater benefit to the public at large than the medicines prescribed by the average physician'

Summarized, the objections to the exploitation of the J B L Cascade Treatment may be stated thus

1—The key-note of Tyrrell's campaign is his alleged theory that "there is only one disease" and that 'there is only one cause for disease" and that cause 'is auto-intoxication produced by intestinal obstruction" The falsity of these statements and absurdity of the theory are obvious

2—A supplementary feature of Tyrrell's 'treatment" is the 'J B L Antiseptic Tonic," which, it is insisted, is 'one of the most important features of the treatment" The "Antiseptic Tonic" is a secret nostrum sold under ridiculously exaggerated claims at an enormously high price Analysis shows it to consist essentially of a mixture of common salt and borax worth probably two-thirds of 1 cent and sold for half a dollar

3—The administration of rectal enemas by means of the J B L Cascade is not only unscientific, but may in many cases be dangerous The common fountain syringe is both safer and more efficient

4—Tyrrell urges the public to take rectal enemas both in sickness and in health—in other words as a routine part of one's living This advice is mischievous to the point of viciousness

5—Tyrrell misleads the public into believing that prominent and distinguished physicians have approved of and testified to his "treatment" The facts are that not one of the physicians named can, by the widest stretch of imagination be called prominent and distinguished

6—The J B L Cascade is advertised as a veritable cure-all It is claimed that used in sickness any curable disease may be cured, used in health all disease will be prevented!

Correspondence

Lister on the Use of Animals in Research

To the Editor—The following letter was found among Lord Lister s papers by his nephew, Sir Rickman J Godlee (ex-president of the Royal College of Surgeons, England), who is about to publish the authorized Life of Lord Lister I have his kind permission to publish the letter It is a signed holograph letter evidently written and revised with unusual care, for there are many changes and corrections in it It was also evidently copied, for "a line is drawn over it as it was copied' as Sir Rickman informs me The envelope is endorsed 'Rough draft of a letter to Dr Keen" No copy of the letter ever reached me Presumably it went astray in the mail It is of especial interest as showing Lister's deep convictions and personal experience

W W Keen, M D, Philadelphia

12 Park Crescent, Portland Place London W
4 April 1898

My dear Sir—I am grieved to learn that there should be even a remote chance of the legislature of any state in the Union passing a bill for regulating experiments upon animals

It is only comparatively recently in the world s history that the gross darkness of empiricism has given place to more and more scientific prac*tice and this* result has been mainly due to experiments upon living animals It was to the e that Harvey was in large measure indebted for the fundamental discovery of the circulation of the blood and the great American triumph of general anesthesia was greatly promoted by them Advancing knowledge has shown more and more that the bodies of the lower animals are essentially similar to our own in their intimate structure and functions so that lessons learnt from them may be applied to human pathology and treatment If we neglect to avail ourselves of this means of acquiring increased acquaintance with the working of that marvelously complex machine the animal body, we must either be content to remain at an absolute standstill or return to the fearful haphazard ways of testing new remedies upon human patients in the first instance which prevailed in the dark ages

Never was there a time when the advantages that may accrue to man from investigations on the lower animals were more conspicuous than now The enormous advances that have been made in our knowledge of the nature and treatment of disease of late years have been essentially due to work of this kind

The importance of such investigations was fully recognized by the commissioners on whose report the act of Parliament regulating experiments on animals in this country was passed, their object in recommending legislation being only to prevent possible abuse

In reality as one of the commissioners, the late Mr Erichsen informed me no single instance of such abuse having occurred in the British Islands had been brought before them at the time when I gave my evidence and that was toward the close of their sittings

Yet in obedience to a popular outcry the government of the day passed an act which went much further than the recommendation of the commissioners They had advised that the operation of the law should be restricted to experiments upon warm blooded animals but when the bill was considered in the House of Commons, a member who was greatly respected as a politician but entirely ignorant of the subject matter suggested that vertebrate' should be substituted for warm blooded ' and this amendment was accepted by a majority as ignorant as himself

The result is that incredible as it may seem, any one would now be liable to criminal prosecution in this country who should observe the circulation of the blood in a frog s foot under the microscope without having obtained a license for the experiment and unless he performed it in a specially licensed place

It can readily be understood that such restrictions must seriously interfere with legitimate researches

Indeed for the private practitioner they are almost prohibitive and no one can tell how much valuable work is thus prevented

My own first investigations of any importance were a study of the process of inflammation in the transparent web of the frog s foot The experiments were very numerous, and were performed at all hours of the day at my own house I was then a young unknown practitioner and if the present law had been in existence it might have been difficult for me to obtain the requisite licenses even if I had got them it would have been impossible for me to have gone to a public laboratory to work Yet without these early researches which the existing law would have prevented, I could not have found my way among the perplexing difficulties which beset me in developing the antiseptic system of treatment in surgery

In the course of my antiseptic work at a later period I frequently had recourse to experiments on animals One *of these occurs to me* which yielded particularly valuable results but which I certainly should not have done if the present law had been in force It had reference to the behavior of a thread composed of animal tissue applied antiseptically for tying an arterial trunk I had prepared a ligature of such material at a house where I was spending a few days *at a distance* from home and it occurred to me to test it upon the carotid artery of a calf Acting on the spur of the moment, I procured the needful animal at a neighboring market a lay friend gave chloroform and another assisted at the operation Four weeks later the calf was killed *and its neck was* sent to me On my dissecting it the beautiful truth was revealed that the dead material of the thread instead of being thrown off by suppuration had been replaced under the new aseptic conditions *by a firm ring of living* fibrous tissue, the old dangers of such an operation being completely obviated

I have referred thus to my personal experience because asked to do so and these examples are perhaps sufficient to illustrate the impediments which the existing law places in the way of research by medical men engaged in practice whose ideas, if *developed* would often be the most fruitful in beneficent results.

But even those who are specialists in physiology or pathology and have ready access to research laboratories find their work seriously hampered by the necessity of *applying for licenses for all* investigations and the difficulty and delay often encountered in obtaining them

Our law on this subject should never have been passed and ought to be repealed It serves no good purpose and interferes seriously with enquiries which are of paramount importance to mankind

Believe me
Sincerely yours,
Lister

Toxicity of Salvarsan

To the Editor—The cases here reported seem more serious than those recently reported by Ormsby and Mitchell, and Ellis (The Journal, Dec 9, 1916, p 1756) Our technic has always been carefully controlled, and we follow the procedure recommended by the manufacturer No *ill effects* have come to our patients previous to the use of the last two packages of ampules shipped us from New York Out of the last twenty-three injections of neosalvarsan we have had four cases of severe poisoning and one death

In the first case, a woman, aged 21, was given 0 6 gm neosalvarsan, during the *injection* she suffered intense pain in the extremities and a sensation of choking, two hours later she had repeated convulsions, vomited blood, and had a bowel movement every half hour, the abdominal pain was intense, the pulse, 150, temperature, 104, this continued for forty-eight hours, after which she gradually recovered

Since this case, we have had three similar, though less severe than the first

In the last case, Mrs L, aged 43, suffering from syphilitic gumma, was given 0 6 gm of neosalvarsan with no marked reaction, eight days later I injected 0 9 gm of neosalvarsan An hour later, there came a choking sensation, followed by a chill, three hours later, severe vomiting ensued, then involuntary bowel movements, and agonizing pain in the stomach, the body became extremely livid, this lasted three days uninfluenced by treatment, on the third day, the body became purple, the pulse imperceptible, and eight hours later the patient died

Since this case, I have learned that several of the specialists in this city have had cases of severe poisoning from the last shipment of this drug

Dr G J Fields had five cases so severe that he has discontinued the use of either salvarsan or neosalvarsan

Dr F A Goeltz treated six cases of poisoning, all previously injected with the earlier preparation of salvarsan

Dr W L Rich reported two very serious cases of poisoning twelve that had some symptoms of salvarsan poisoning, and eight persons who became only very ill

Claude L Shields, M D, Salt Lake City

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer s name and address but these will be omitted on request

LEAD POISONING FROM Q BAN HAIR COLOR RESTORER

To the Editor —I have recently seen a case of lead neuritis following the use of a hair color restorer called ' Q Ban made by the Hessig Ellis Drug Company of Memphis Tenn Will you kindly inform me as to whether you have any record of such cases and whether you have an analysis of this preparation showing the amount of lead present?

Lester Adams M D
Eastern Maine General Hospital Bangor Maine

Answer —In May, 1915, Dr E B Markey of Dayton, Ohio, reported untoward effects from the use of Q-Ban Hair Color Restorer" in two cases that came under his observation In both cases the victims 'developed a moderately severe dermatitis of the forehead, neck and face' following the use of the preparation "Q-Ban Hair Color Restorer" was analyzed by the Connecticut Agricultural Experiment Station and the results reported in the Annual Report of 1915 According to this report the product had the following composition

Alcohol by volume	10 46 per cent
Solids	16 39 gm per 100 c c
Glycerin	11 56 gm per 100 c c
Free sulphur	3 08 gm per 100 c c
Lead acetate	1 68 gm per 100 c c
Oil of rose geranium	present
Salicylates resorcin alkaloids	none

The Connecticut chemists, in summarizing the results of their work said 'This is a perfumed, alcohol-glycerin solution of 1 68 gm per 100 c c of lead acetate, containing 3 08 gm of free sulphur in suspension It is simply one of the many familiar lead acetate-sulphur preparations, and its use is by no means free from danger'

TREATMENT OF ARTHRITIS DEFORMANS

To the Editor —Is there anything worth while medicinally, in the treatment of arthritis deformans after such *focal infections as tend to causation* have been removed? I have a patient a girl 21 years old who has had arthritis deformans for a year her father has had it for twenty years It is possible that I have overlooked the recent literature on the latest methods of treatment

E F Fischer M D, Alton, Ill

Answer —The treatment of arthritis deformans involves a number of factors There seems to be no question that the initial damage to the joints in many cases is accomplished by infection derived from some focus in the body Bacterial invasion of joints may be intermittent, so that new joints are successively involved, and exacerbations occur in those previously affected The source or sources of this infection should of course be sought for and, if found, removed But *when the patient* seeks relief, presenting the clinical picture of some one of the types of arthritis deformans, the anatomic changes in the joints, such as the formation of granulation tissue, villous excrescences from the synovial surfaces, the erosion of cartilage, new bone formation about the margins of the articular surfaces, and the relaxation of the joint ligaments are more or less advanced These changes have resulted not alone from infection, but also from the continued trauma of use acting on injured joint surfaces It is evident, therefore, that the mere removal of the original cause of these changes cannot appreciably modify the existing lesions of joints, further than to prevent the invasion of new joints But much can still be accomplished for these patients It is important to consider the special needs of each In one instance important joints may have become ankylosed in unusable positions, or their motion interfered with by marginal exostoses Appropriate surgical treatment will be of service in such cases Other joints are benefited by immobilization with splints or adhesive tape Continued infection pain and interference with locomotion may have resulted in partial invalidism, with attendant anemia, poor appetite and sluggishness of function of various organs of the body With the removal of infection and all possible mechanical correction of deformities should go attention to nutrition by giving a well balanced general diet Tonics containing iron may be of benefit There is no drug therapy specific for this condition although some simple form of iron may be of benefit Outdoor life and such moderate exercise as is consistent with the policy of rest for affected joints will help to build up the general tone of the patient

INTRAVENOUS INJECTION OF QUININ

To the Editor —1 Please give the latest technic on quinin administration by the intravenous method

2 Is it safe to give from 5 to 10 grains of the dihydrochlorid in 1 c c sterile saline or distilled water intravenously?

3 Please give the latest technic of quinin administration by the intramuscular method

Kindly omit name P H C

Answer —1 The technic of the injection is the same as that of other intravenous injections such as of neosalvarsan

2 The formula suggested (from 30 to 60 per cent) is far too concentrated for intravenous injection Baccelli, the originator of the method recommended a 10 per cent solution Present opinion, however regards even this as much too strong Deaderick ('Endemic Diseases of the Southern States" 1916) recommends a 1 per cent solution Recently Witherspoon (*Southern Medical Journal*, December, 1916) reported the results of several injections of 10 grains of dihydrochlorid in 15 c c of water, approximately a 5 per cent solution Practically all of the patients reacted severely to such injections The dose which our correspondent mentions is correct The mixing of the metric and the apothecaries systems of weights and measures should be avoided, it is apt to lead to confusion

3 Parenteral administration of quinin is heroic, see "Hypodermic Injection of Quinin," Queries and Minor Notes, The Journal, Dec 30, 1916, p 2030

THE NATIONAL BOARD OF EXAMINERS—RECIPROCITY

To the Editor —1 What are the requirements that one must have to take the examination by the National Board of Medical Examiners or where can I obtain this information? 2 What is the scope of the national board as regards recognition by all the states? 3 Please inform me where I can get a pamphlet or booklet on reciprocity

Kindly omit name L F P

Answer —1 Candidates who graduated since 1912 (*a*) must have completed two years of acceptable college work, including physics chemistry, biology and a modern language, based on a four year high school education, (*b*) must have graduated from a medical college rated in Class A by the American Medical Association, and (*c*) must have spent at least one year in an acceptable hospital as an intern or in a laboratory For those who graduated prior to 1912 the board may accept equivalent credentials Further information and application blanks may be obtained from the secretary, Dr J S Rodman, 2106 Walnut Street, Philadelphia

2 The states in which the boards have thus far announced their willingness to recognize the certificates of the national board are Colorado Idaho, Iowa, Kentucky, Maryland, New Hampshire, North Dakota and Pennsylvania

3 Information regarding reciprocity is contained in a book of "Laws (Abstract) and Board Rulings" published by the American Medical Association The price is 30 cents

LITERATURE ON INFANTILE PARALYSIS

To the Editor —It falls to my lot to give a talk on infantile paralysis before a club and I wish to review some of the latest work done in this line I would consider it a great favor if you would tell me where I can get this information M D, Iowa

Answer—The following is a list of references on this subject

Sophian Abraham Municipal Control of Infantile Paralysis The Journal Aug 26 1916, p 669
Ryerson Operative Treatment of Deformities Due to Poliomyelitis *Am Jour Orthop Surg* February 1916
Neal and Dubois Diagnosis of Poliomyelitis, *Am Jour Med Sc* September 1916
Mathers George and Tunnicliff Ruth A Reaction of Immunity in Acute Poliomyelitis, The Journal Dec 23, 1916, p 1935
Stern W G The Prognosis in Infantile Paralysis The Journal July 29, 1916 p 325
Flexner Simon Note on the Serum Treatment of Poliomyelitis (Infantile Paralysis) The Journal Aug 19 1916, p 583
Lovett R W A Plan of Treatment in Infantile Paralysis The Journal Aug 5 1916, p 421
Rosenow, E C Towne E B, and Wheeler G W The Etiology of Poliomyelitis The Journal Oct 21 1916, p 1202
Nuzum J W and Herzog Maximilian Experimental Studies in the Etiology of Acute Epidemic Poliomyelitis The Journal Oct 21 1916, p 1205

WEIL FELIX DIAGNOSTIC REACTION IN TYPHUS

To the Editor —What is the new Weil Felix reaction? F E

Answer—This reaction was described by Weil and Felix in the *Wiener klinische Wochenschrift*, Nos 2, 28 and 31, 1916 but none of these numbers have happened to reach us From references to the reaction in periodicals which have come through recently, it seems that Weil and Felix succeeded in isolating from typhus material a proteus-like germ which gives a specific agglutinating reaction with the serum of typhus patients They cultivated this germ from the urine and blood of typhus patients in a total of thirty-four cases, and never succeeded in cultivating it from other patients The agglutinins for this reaction do not develop much before the sixth day, but the reaction persists pronounced from then onward until defervescence, when it promptly disappears No constant connection between this agglutination and the Widal agglutination could be detected, and in diseases other than typhus there is no agglutination with the Weil-Felix technic, or it takes hours to occur instead of the rapid response in typhus One writer reports that the Weil-Felix strain agglutinated at 1 50 up to 1 1 600 with typhus serum, while there was no agglutination with other patients even at 1 20

PURPURA HEMORRHAGICA

To the Editor —1 Please inform me concerning the latest treatment and its results in purpura hemorrhagica

2 Has autoserum ever been used? If so, with what success?
George H Sciaroni M D Sutter Creek Calif

Answer—1 Present opinion seems to favor the employment of blood or serum injections in some form for the treatment of this disease A full discussion of the treatment of this disease will be found in an article by Fmsheimer published in The Journal Jan 1 1916, p 20 The following are the conclusions of this article

> The best methods of treatment of purpura hemorrhagica in addition to the usual measures are (*a*) subcutaneous or intravenous injection of human blood serum (*b*) transfusion and (*c*) intramuscular injection of whole fresh human blood
>
> The intramuscular injection of whole blood is a simple harmless effective procedure and should be employed before other radical measures in all cases of severe purpura hemorrhagica

A case successfully treated with horse serum is reported in The Journal, April 1, 1916, p 1020

2 No reports are available of cases in which the patient s own serum has been used

NINE USEFUL DRUGS

To the Editor —As a subscriber to your valuable publication I write to know if you have ever published your symposium on Nine Useful Drugs' as inquired about in your issue of July 22 1916? If so when did it appear? Edward C Tingley D O, Los Angeles

Answer—Only eighteen replies were received to the original question, hardly enough to make an analysis worth while We again repeat the question in the hope that sufficient answers, at least 100, will be received The question follows

To the Editor —In my grip which I carry with me I have a case of nine medicine bottles Would you make a suggestion as to the most useful drugs to carry with me? Morrell Simpson, M D —— Ind

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama Montgomery, Jan 9 Chairman, Dr W H Sanders Montgomery
California Sacramento Jan 9 Sec Dr C B Pinkham Forum Bldg Sacramento
District of Columbia Washington Jan 9 Sec Dr Edgar P Copeland The Rockingham Washington
Illinois Chicago Jan 24 26 Sec, Dr C St Clair Drake, Capitol Bldg, Springfield
Indiana Indianapolis Jan 9 11 Sec Dr W T Gott, 120 State House Indianapolis
Iowa Des Moines Feb 6 8 Sec Dr G H Sumner Capitol Bldg, Des Moines
Kansas Topeka Feb 13 Sec Dr H A Dykes, Lebanon
New Mexico Santa Fe Jan 8 Sec Dr W E Kaser, East Las Vegas
New York New York City Albany Syracuse, and Buffalo Jan 29 Feb 2 Chief, Examinations Division H H Horner, University of the State of New York Albany N Y
Oklahoma Oklahoma City Jan 9 10 Sec, Dr Ralph V Smith 502 Daniel Bldg Tulsa
Pennsylvania Philadelphia, Jan 9 11 Sec Nathan C Schaeffer, Capitol Bldg Harrisburg
South Dakota Pierre Jan 10 Sec Dr P B Jenkins, Waubay
Vermont Montpelier Feb 13 Sec Dr W Scott Nay, Underhill
Wisconsin Madison Jan 9 11 Sec Dr John M Dodd 220 E 2d St Ashland

New Mexico July Report

Dr W E Kaser secretary of the New Mexico Board of Health and Medical Examiners reports the written examination held at Sante Fe, July 10-11, 1916 The total number of subjects examined in was 13, total number of questions asked, 100, percentage required to pass, 75 One candidate was licensed by examination, three candidates through reciprocity, and 11 *on satisfactory credentials* The following colleges were represented

College PASSED	Year Grad	Per Cent
Mississippi Medical College	(1912)	78

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
University Medical College of Kansas City	(1907)	Kansas
University of Oklahoma	(1913)	Oklahoma
Memphis Hospital Medical College	(1904)	Oklahoma

College LICENSED ON SATISFACTORY CREDENTIALS	Year Grad	Total No Licensed
Atlanta Medical College	(1915)	1
Rush Medical College	(1886)	1
University of Louisville	(1910)	1
Tulane University	(1916)	1
Washington University	(1903)	1
College of Physicians and Surgeons	(1896)	1
College of Phys and Surg in City of New York	(1889)	1
Medico Chirurgical College of Philadelphia	(1910)	1
University of Tennessee	(1916)	1
Vanderbilt University	(1916)	1
University of Texas	(1897)	1

Pennsylvania July Report

Mr N C Schaeffer secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the written examination held at Philadelphia and Pittsburgh, July 11-13, 1916 The total number of subjects examined in was 5, total number of questions asked 50, percentage required to pass 75 The total number of candidates examined was 204, of whom 174 passed and 30 failed Five candidates were licensed through reciprocity The following colleges were represented

College PASSED	Year Grad	Total No Licensed
Gross Medical College	(1901)	1
Georgetown University	(1915)	2
Hahnemann Med Coll and Hosp Chicago	(1915)	1
Coll of Phys and Surgs, Baltimore	(1914) (1915 3)	4
Johns Hopkins University	(1915)	2
University of Maryland	(1914 2) (1915 3)	5
Harvard University	(1915) (1916)	2
University of Michigan Medical School	(1881) (1915)	2
Barnes Medical College	(1899)	1
Columbia Univ, Coll of Phys and Surgs	(1914)	2
Fordham University	(1915)	1
Long Island College Hospital	(1915)	1
New York Homeo Med Coll and Flower Hosp	(1915)	1
Woman s Med Coll of the N Y Infirmary for Women and Children	(1897)	1
Ohio Medical University	(1907)	1
Western Reserve University	(1915)	1

Hahnemann Med Coll and Hosp of Phila	(1914 3) (1915, 11)	14
Jefferson Med Coll	(1875) (1910) (1913) (1914, 4) (1915, 43)	50
Medico Chirurgical Coll of Phila	(1914) (1915 37)	38
Temple University	(1915)	12
University of Pennsylvania	(1913) (1914 3) (1915 13)	17
University of Pittsburgh	(1915)	9
Woman's Med College of Pa	(1915)	5
School of Medicine of Nuevo Leon Monterey	(1882)	1
FAILED		
University of Louisville	(1912)	1
College of Phys and Surgs Baltimore	(1914) (1915)	2
Maryland Medical College	(1912) (1913 2)	3
New York Homeo Med Coll and Flower Hosp	(1915)	1
Eclectic Medical College	*(1915)*	*1*
Jefferson Medical College	(1914) (1915 3)	4
Medico Chirurgical Coll of Phila	(1914) (1915 8) (1916)	10
Temple University	(1914) (1915 2)	3
Medical College of Virginia	(1915)	1
McGill University	(1915)	1
University of Genoa	(1913)	1
University of Naples	(1895) (1908)	2

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College	(1884)	Kansas
University of Michigan Homeo Med School	(1911)	New Jersey
Western Reserve University	(1912)	Ohio
University of Pennsylvania	(1913)	Ohio
Univ College of Medicine Richmond	(1897)	W Virginia

Hawaii September Report

Dr R W Benz secretary of the Hawaii Board of Medical Examiners, reports that eleven candidates were licensed at the examination held Sept 20 1916 The following colleges were represented

College PASSED	Year Grad	Total No Licensed
Coll of Phys and Surg Los Angeles	(1915)	1
George Washington University	(1910)	1
Loyola University	(1916)	1
University of Louisville	(1916)	2
Boston University	(1906)	1
Tufts College	(1910)	1
Washington University	(1915)	1
John A Creighton Medical College	(1916)	1
Kumamoto Special Medical School	(1910)	1
Nagasaki Special Medical School	(1902)	1

Massachusetts September Report

Dr Walter P Bowers secretary of the Massachusetts Board of Registration in Medicine, reports the oral practical and written examination held at Boston Sept 12-14, 1916 The total number of subjects examined in was 13, total number of questions asked, 70, percentage required to pass, 75 The total number of candidates examined was 42, of whom 26 passed, including 3 osteopaths and 16 failed, including 5 osteopaths The following colleges were represented

College PASSED	Year Grad	Per Cent
University of Maryland	(1916)	81 1
Boston University	(1915) 76 (1916) 75	77 7
College of Physicians and Surgeons Boston	(1916) 75 1	75 6
Harvard University	(1915) 82 3 (1916) 76 6 80 3 80 4 81 2	83 5
Tufts College Medical School	(1915) 75 (1916) 75 75 6 76	78 1
Albany Medical College	(1915)	77
Columbia University	(1914)	81 3
Cleveland Homeopathic Medical College	(1908)	75
University of Vermont	(1913) 75 3 (1915)	78 3
Dalhousie University	(1915)	77 9
FAILED		
Loyola University	(1916)	*
Chicago College of Medicine and Surgery	(1909) 66 2 (1916)	66 8
Baltimore Medical College	(1909)	72
Maryland Coll of Eclectic Medicine and Surgery	(1914)	61 2
Boston University	(1915)	68 1
College of Physicians and Surgeons Boston	(1916) 68 2 69 6,	73
Tufts College Medical School	(1913) 70 3 (1916)	71 4

* Did not complete examination

Wisconsin Reciprocity Report

Dr J M Dodd, secretary of the Wisconsin State Board of Medical Examiners reports that 7 candidates, including 1 osteopath, were licensed through reciprocity, September 29-30, 1916 The following colleges were represented

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Bennett Medical College	(1914)	Illinois
Chicago Coll of Medicine and Surgery	(1915)	Illinois
University of Illinois	(1913)	Illinois
Tulane University of Louisiana	(1910)	Louisiana
St Louis University	(1912)	Missouri
University Medical College of Kansas City	(1903)	Kansas

Book Notices

Dyke's Automobile and Gasoline Engine Encyclopedia Treating on the Construction Operation and Repairing of Automobiles and Gasoline Engines By A L Dyke E E Fifth Edition Cloth Price $3 Pp 717, with 366 illustrations St Louis A L Dyke 1916

The motor car has become almost a necessity to the physician—certainly as much so as was the horse and buggy a decade ago And probably the same proportion of physicians take care of and drive their own machines as formerly drove their horse-drawn conveyance To take care of and drive an automobile with any satisfaction, it is essential to know at least the general principle of the inner combustion engine and the various mechanical devices which are necessary to transmit the power generated by the gasoline explosion so that it will turn the wheels of the automobile Dyke's "Automobile and Gasoline Engine Encyclopedia" explains all this in such a clear, simple form that any one will understand it The book is elaborately illustrated, and the only fault with it—if this could be considered a fault—is the detail in which practically every part of the mechanism and every principle is explained

Syphilis and the Nervous System for Practitioners Neurologists and Syphilologists By Dr Max Nonne Chief of the Nervous Department in the General Hospital Hamburg Authorized Translation *from the Second German Edition by* Charles R Ball M D, Chief of the Nervous and Mental Department St Paul Free Dispensary Second American Edition Cloth Price $4 Pp 450 with 98 illustrations Philadelphia J B Lippincott Company, 1916

This is the second American edition, presumably a translation from the third German edition of this work, it is practically the same as previous editions, except that a chapter on salvarsan therapy has been added The author is essentially a clinician While the book is really an extensive review of our present knowledge of syphilis of the nervous system, it contains the views of leading neurologists and syphilographers and covers the pathology very well The greatest usefulness of the work lies in its value as a guide to the practitioner With the introduction of salvarsan and of intraspinal injections, the therapy of syphilis of the nervous system has undergone so many modifications that it is entirely impossible for any textbook to present a complete and up to date statement of the present status of the treatment of syphilitic diseases of the nervous system In this respect the present book perhaps attains all that can be expected of it As not infrequently happens in later editions some of the more recent statements need to be harmonized with those in older portions of the text, or, rather, some of the former statements need to be eliminated entirely While the book is not without some minor defects, it is perhaps quite the best thing in English covering the subject of which it treats The translator has done his work well, although in places he has not succeeded in getting away from the German idiom and occasionally is too literal

I K Therapy (Immunkorper Immune Substances) in Pulmonary Tuberculosis with a Summary of Cases By William Barr M D D Sc D P H District Tuberculosis Officer for the West Riding of Yorkshire Cloth Price $1 25 net Pp 82 New York William Wood & Co, 1916

In order to overcome the apathy toward Spengler's Immunkorper therapy to set forth the benefits that have been obtained therewith, and incidentally to point out mistakes occurring in its use, the author makes this contribution purely on a clinical basis It is written in a rather generalized form and considers dosage, reactions, suitability of cases for treatment, contraindications, and effects and results of treatment A summary of the results in forty-seven ambulant cases treated by the author is given The book is written in extremely simple form, probably with a view to appealing to the general practitioner, and the author is easily misled by the psychology of the patient, as attested by a paragraph on page 52 ending 'and, after all, it is the patient who is the final judge (meaning of the efficacy of the treatment) Only such data as the weight of the patient, the temperature and the amount of sputum are used as criteria in judging the efficacy of I K

Social Medicine, Medical Economics and Miscellany

TREPONEMA PALLIDUM AND SPIROCHAETA PALLIDA

From the Standpoint of the International Rules of Zoological Nomenclature

CHARLES WARDELL STILES, M D
Professor of Zoology U S Public Health Service
WASHINGTON, D C

THE JOURNAL,[1] Nov 25, 1916, contained an exceedingly interesting and scholarly article by Dr Pusey of Chicago, dealing with the nomenclature of the protozoon of syphilis and showing in its composition an elaborate amount of bibliographic study Copies of THE JOURNAL in question had been in Washington but a few hours when suggestions reached the office of the International Commission on Zoological Nomenclature that the case be discussed from the standpoint of the international rules The latter fact evidences the point that despite the care with which Dr Pusey prepared his brief, there are some features of the subject which he did not include in his discussion, and it is in compliance with the suggestions mentioned that the present manuscript is prepared

Before the nomenclatorial premises are set forth and the rules applied, and to make the general subject clearer to nontaxonomists, it will be well to explain certain differences of opinion as to generic concepts

THE OLDER AND THE NEWER VIEWS OF GENERIC LIMITS

Workers in systematic zoology and systematic botany may be divided into two general classes those who favor broad genera with many species, and those who favor small genera with fewer and very closely allied species The former are known as the "lumpers," because they "lump" many species into one generic group, the latter are called "splitters," because they split up the genera into small and allegedly more homogeneous groups

For instance, a "lumper" might consider that all of the tapeworms possessing four suckers should be placed in one and the same genus, *Taenia*, while a "splitter" would recognize *Taenia* (for species of the type of *T solium*), *Hymenolepis* (for species of the type of *T diminuta*) *Dipylidium* (for species of the type of *T canina*), *Davainea* (for species of the type of *T proglottina*), etc Or to take another example, a "lumper' of the old school might unite the field mice, the house mouse, the rats, and the guinea-pigs in the genus *Mus*, while a 'splitter" of the newer school would consider that the rats are much more closely related to each other and to the house mouse than they are to the field mice and the guinea-pigs, accordingly he would express this evolutionary or blood relationship by dividing the old genus *Mus* into a number of genera, and by uniting these genera into subfamilies, families superfamilies, etc in order to give what he calls a "natural" as distinguished from an artificial" classification Thus, a genus, from the standpoint of a "lumper," might be a family or even a superfamily from the standpoint of a "splitter '

These two points of view are determined by two factors in particular first, by different opinions as to whether given anatomic characters are of specific, subgeneric, generic, or supergeneric value, and, second by the existing knowledge in any given decade in respect to the details of the anatomy of the different species

The second factor mentioned, increase in anatomic knowledge as years advance, has a natural tendency to cause later systematists to divide and subdivide the genera of earlier authors The first factor, different opinion as to the classificatory value of various characters in respect to formation of systematic units of higher or of lower rank, is dependent on several points, notably, however on the fact as to whether an author has studied a relatively small number or a relatively large number of different organisms of various groups and, further, on the fact whether his special training has been on the taxonomic side or on the biologic side of these organisms

In harmony with the foregoing generalizations, it may be expected that medical authors (who have to deal with relatively few different kinds of organisms) will be predisposed to become ' lumpers," as were the earlier zoologists and earlier botanists, while modern systematic zoologists and modern systematic botanists (who have to classify a very much greater number of organisms) will show a predisposition to array themselves on the side of the "splitters"

These conditions are inevitable in science and must be accepted with equanimity That the entire tendency in taxonomy today is, and for more than half a century past has been, toward the point of view of the "splitters" will be evident to any person who studies nomenclature extensively That medical literature is and always will be from five to ten years back of zoological and botanic literature in admitting and adopting the finer points of generic concepts in zoology and botany seems equally clear

Applying these generalizations to *Spirochaeta* and *Treponema*, a 'lumper" would unite a large series of free-living and parasitic forms in the old genus *Spirochaeta*, while a splitter" would divide these organisms into several groups (genera) at the same time uniting into each of the restricted genera the species which he considers most closely related to each other In these differences of opinion it is natural to expect that the tendency of the medical authors will be toward the point of view of the 'lumpers," while that of the zoologists (as illustrated by Schaudinn) will be toward the point of view of the splitters"

THE NOMENCLATORIAL DIFFICULTIES

Dr Pusey in his interesting and learned article, practically takes the point of view characteristic of a number of authors namely, that the choice between two names is to be determined by the preponderance of the use of one or the other of these names This view is not entirely in harmony with that held by the vast majority of systematists, who are the authors on whom the greatest burden of systematic names falls As zoologists are obliged to handle hundreds of thousands of systematic names, and to keep them as clear as possible despite the change of views in respect to classification from one decade to the next, the zoological profession has seen itself forced to formulate rules for guidance in accepting changing, and rejecting names For a number of years different countries had different sets of rules, but finally the International Zoological Congresses have succeeded in establishing a series of international rules which are under the care, so to speak, of an international commission of eighteen professional zoologists selected from various countries These commissioners are elected in three classes of six men each Each class serves nine years, and the term of one class expires every third year The international rules are published in English, French German, and Italian and the 'Opinions" of the commission are published by the Smithsonian Institution

It is an undeniable fact that not every zoologist considers himself bound by these rules as it is also a fact that not every physician considers himself bound by the medical code of ethics, but the rules have been adopted by the International Congress, and thus they are the formal expression of opinion of the organized zoological profession

As a legalized practitioner of medicine, I would submit the claim that if a physician calls into consultation a zoologist, the latter becomes for the moment a quasimember of the medical profession, and in matters concerning the patient this zoologist is bound by the code of ethics as adopted by the organized medical profession

Conversely, as a professional zoologist, I would submit that when a physician enters the field of zoological nomenclature he should consider himself subject to the rules as adopted by the organized zoological profession, rules that have been established for the good of all persons concerned

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[1] Pusey W A. Spirochaeta pallida or Treponema pallidum? THE JOURNAL A M A Nov 25 1916 p 1621

THE NOMENCLATORIAL PREMISES IN THE CASE OF TREPONEMA PALLIDUM AND SPIROCHAETA PALLIDA

In considering competitive names we must first have before us certain premises, in particular the dates of publication and the genotypes (or type species) for the genera under consideration

The dates of publication are important when it comes to the application of the law of priority

The expression "genotype" or "type species" is relatively little known in medical literature, and must therefore be explained

There have been about 1,500 or more specific names used with the generic name *Taenia* since 1758 Assume that we wish to divide the numerous species thus represented, into ten or into 100 more restricted genera the question immediately arises as to where the name *Taenia* belongs Every generic name is supposed (theoretically) to be based on a single species its nomenclatorial genotype or type species and if the genus is divided the original name goes automatically to that subdivision which contains the type species (namely, *Taenia solium* for the generic name *Taenia*), so that no matter how differently authors may classify the various species, every author is obliged under the rules to apply the name *Taenia* to the restricted group to which he assigns *Taenia solium*

The points which come into consideration in determining which species is genotype for a given generic name are elaborately worked out in Article 30 of the international rules

The nomenclatorial premises for the case now under consideration are as follows

In 1834 Ehrenberg proposed *Spirochaeta* as a new genus basing the same on the single species *S plicatilis* described in the same paper, with Berlin Germany, as its type locality where it is a free-living organism in water Article 30 (*c*) reads "A genus proposed with a single original species takes that species as its type (Monotypic genera)" Accordingly, *S plicatilis* is the genotype of *Spirochaeta*

In 1841 Dujardin changed the spelling of the generic name to *Spirochoeta* and in 1872 Cohn changed it to *Spirochaete* Both of these new modes of spelling are known as "variants," and they are dependent on the same type species as the original name *Spirochaeta*

From 1834 to 1905, a considerable number of minute spirochete-like organisms were described by various authors, who placed the species in question in the genus *Spirochaeta* 1834 This was a perfectly proper procedure from the point of view that their major characters were identical with the characters interpreted as major characters of *S plicatilis* As the genus grew in size by the addition of various organisms, it became evident from the point of view of certain authors that what had been interpreted as major generic characters were probably characters of supergeneric (as family) rank, and in accord with this view several authors have selected certain species which were included by earlier writers in the genus *Spirochaeta*, have designated them as type species of new genera, and have assembled around these type species other species which they consider more closely related to the respective genotypes than to *S plicatilis*

Vuillemin, for instance, June 5, 1905, proposed the new genus *Spironema*, basing it on *Spirochaeta pallida* Vuillemin was not aware of the fact that the name *Spironema* had been given in 1864 to a genus of mollusks

Article 34 of the International Rules reads as follows

> A generic name is to be rejected as a homonym when it has previously been used for some other genus of animals Example *Trichina* Owen 1835 nematode is rejected as homonym of *Trichina* Meigen, 1830 insect (See Opinions 12 and 19)

According to Article 34, just quoted *Spironema* 1905 is an absolute homonym of *Spironema* 1864 and is automatically rejected on this account

Schaudinn noticed that the name of *Spironema* 1905 was not available under the rules, and he proposed the name *Treponema* as substitute, basing the name on the species *Spirochaeta pallida* The name *Treponema* was published, Oct 26, 1905

Stiles and Pfender, also, independently of Schaudinn, noticed that *Spironema* 1905 was preoccupied by *Spironema* 1864, and they published, Dec 2 1905, the new generic name *Microspironema*, basing it on *Spirochaeta pallida* The law of priority, namely, Article 25 of the international rules, reads as follows

> The valid name of a genus or species can be only that name under which it was first designated on the condition (*a*) that this name was published, and accompanied by an indication, or a definition, or a description and (*b*) that the author has applied the principles of binary nomenclature (See 'Opinions' 1, 2, 4, 5 9, 10, 12 13, 15 17 19 21 24, 28 37 40 46, 49 54 56)

Accordingly, *Microspironema* of Dec 2, 1905 automatically falls as an absolute synonym of *Treponema* of Oct 26, 1905

It now remains to consider *Spirochaeta* 1834 and *Treponema* 1905 As shown in the foregoing, *Spirochaeta* 1834 has for its genotype a free-living organism (*S plicatilis*), while *Treponema* has for its genotype an obligatory parasitic organism (*T pallidum*), with man as the type host These two organisms differ in certain anatomic, physiologic, and biologic characters

We now have a very clear cut and simple nomenclatorial proposition before us, but the decision finally rests on the point whether we are "lumpers" or "splitters"

If we belong to the "lumpers" and hold that *Treponema pallidum*, an obligatory parasite is congeneric with *Spirochaeta plicatilis*, a free-living organism, it is incumbent on us, under the rules, to express our view on the classification by the nomenclature we use and thus to adopt the name *Spirochaeta pallida*

If, on the other hand, we belong to the "splitters," and hold that the spirochetes represent a heterogeneous mass of species which in the interest of clarity of classification should be assembled into more restricted and more natural generic groups, it is incumbent on us to confine the name *Spirochaeta* to organisms showing the major characters of *S plicatilis* *Cristispira* to organisms showing the major characters of *S balbianii* and *S anodontae*, *Treponema* to those showing the major characters of *S pallida*, *Spiroschaudinnia* to those showing the major characters of *S recurrentis*, and so on through all of the restricted groups we wish to recognize

Thus, not entirely in harmony with the view expressed by Dr Pusey, namely, that authors who use *Treponema* do so out of deference to the memory of Schaudinn, these authors are in reality "splitters," who are acting entirely in accord with the international rules

The practical question remains as to what course is best for an author who prefers not to express an opinion on the strictly taxonomic side of the problem

Several courses are open to him

1 He may adopt either name and quote the other in parentheses, as *Spirochaeta pallida* (*Treponema pallidum*) or *Treponema pallidum* (*Spirochaeta pallida*) It will suffice if he gives either of these double citations only once in his article, namely, the first time he mentions the technical name After that he will do well to use consistently either the one or the other, but not both binomials

2 He may use either name explaining in a footnote that he does not commit himself to any taxonomic interpretation

3 He may take an intermediate position between the "lumpers" and the "splitters" by recognizing *Treponema* as a subgenus of *Spirochaeta*, and in this case he writes *Spirochaeta* (*Treponema*) *pallida*

POSSIBLE COMPLICATION OF BIOLOGIC DATA

There is a point, however, which it is wise for authors to recall In discussing biologic data, as in life histories, cultural methods, etc, it is much more difficult to separate data which are confused under one generic name than to unite data which are well defined under two generic names Far-sightedness lies in keeping biologic data as distinct as possible Applying this principle to taxonomic units, the more progressively conservative plan is to adopt restricted rather than broad units if one is in doubt as to the name to be used Specifically, if the biologic data concerned in *Treponema pallidum* become confused with the biologic data involved in *Spirochaeta plicatilis*, it will, in all probability, be very much more difficult later to divide the data between *Treponema* and *Spirochaeta* if both are classified now as congeneric than if they are now classified as generically distinct, for the reason that many authors, in discussing these data, will use the name "spirochetes" instead of the specific names *S plicatilis* and *S pallida,* and as one author quotes from another, year after year, confusion will increase in this case as it has in other cases

From this point of view, even if from no other, it appears more far-sighted to adopt at present the name *Treponema* for *T pallidum*

As this article is intended simply to present the nomenclatorial points at issue, I refrain from entering into a discussion of the more strictly zoological points as to the characters which have induced certain zoological authors to recognize *Treponema* as of generic rank, distinct from *Spirochaeta*

I believe, however, that it is entirely consistent with the nature of the discussion to add that my experience in zoological nomenclature, not only as a systematist, but especially as a member of the International Commission since 1895, has thoroughly persuaded me of the wisdom and conservatism (from the point of view of the future) of using restricted generic groups in preference to larger heterogeneous genera, and that in case of doubt it is, in general, the better course to accept a restricted generic name, especially when discussing its genotype

For instance, if I were seriously in doubt as to whether *Treponema* should be considered generically distinct from *Spirochaeta,* I should accept *Treponema* for *T pallidum* and its closest allies, on the practical ground that this course is much less likely to result in later confusion in respect to biologic and bibliographic data in case subsequent work proves to the satisfaction of the "lumpers" that *Treponema* should be recognized as distinct from *Spirochaeta,* but I should, in that case, quote *Spirochaeta* at least once in my article in a way to indicate to systematists that I was aware of the difference of opinion which exists among authors

The case under discussion is not unlike that of *Endamoeba histolytica* A "lumper" might consider *Amoeba histolytica* congeneric with *A limax, A proteus,* etc, but a "splitter" would consider it more exact and more practical to recognize *Endamoeba histolytica* and *Vahlkampfia limax* as generically distinct from *Amoeba proteus* (*seu Chaos chaos*)

The question whether the literature of any particular group of men uses *Amoeba* or *Endamoeba* would not be the determining factor in the nomenclature of the group

From the foregoing it will be clear, I hope, that the question of sentiment is not recognized by the international rules

In his last paragraph Dr Pusey says, "If the best usage means anything, *Spirochaeta pallida* is an acceptable term for the organism of syphilis" In this connection it may however, be pointed out that our conception as to what is best usage depends largely on the question whether we are 'lumpers" or "splitters" Best usage from the point of view of the splitter is that usage which comes closest to expressing a natural classification of the organisms, and this is a question which will eventually be based on consensus of opinion by taxonomists who deal with large numbers of organisms, both free living and parasitic

If it can be shown that it "will produce greater confusion than uniformity" to use *Treponema* instead of *Spirochaeta,* it would be within the power of the International Commission to suspend the rules in this case and to apply *Spirochaeta* to the treponemes, instead of to the spirochetes typified by *S plicatilis* even if authors universally agree that *S plicatilis* and *T pallidum* are not congeneric, but unless it can be shown that the application of the rules will produce greater confusion than uniformity authors who consider *T pallidum* generically distinct from *S plicatilis* have no argument which would justify them in continuing to use *Spirochaeta pallida* in place of *Treponema pallidum*

SUMMARY

1 Any author who considers *Spirochaeta plicatilis* congeneric with *Treponema pallidum* is expected to express this view in his nomenclature by using *Spirochaeta pallida* as the name for the organism of syphilis

2 Any author who considers that *Treponema pallidum* is generically distinct from *Spirochaeta plicatilis* is expected to use the name *Treponema pallidum*

3 This is not an editorial question, but one of nomenclature based on taxonomic concepts, and it will be finally settled on the basis of ultimate consensus of opinion by systematists as to the generic limits of *Spirochaeta,* type *S plicatilis*

4 In case of doubt, and pending final settlement, it is clearly better, in order to keep biologic data as distinct as possible, to follow Schaudinn in using *Treponema* as generic name for the organism of syphilis The use of *Treponema pallidum* precludes confusion, the use of *Spirochaeta pallida* need not necessarily result in confusion, if all authors quote the specific as well as the generic name, but it invites confusion because so many authors shorten the technical name to "spirochetes"

5 A position intermediate between the "lumpers" and the "splitters" may be taken by recognizing *Spirochaeta* as a genus containing certain subgenera (*Spirochaeta* s str, *Treponema,* etc) If this intermediate position is preferred, the proper citation of the organism of syphilis would be *Spirochaeta* (*Treponema*) *pallida*

6 If a vernacular name is desired for *Spirochaeta (Treponema) pallida,* "treponeme" is likely to keep biologic data differentiated more clearly than will the name "spirochete"

[Dr Pusey s discussion of Dr Stiles reply will appear in this department next week]

Practical and State Medicine

In his address to the students at the opening of the medical school of the University of Michigan in October, 1916 (*Science,* Dec 8, 1916, p 799), Prof Victor C Vaughan in expressing his views of the needs of the present and of the future of practical medicine, said

The greatest need of practical medicine today is more and better equipped hospitals With these the specialist and the skilled nurse will multiply and improve Such hospitals should be supplied with thoroughly equipped and competently manned diagnostic laboratories which should serve not only curative but also preventive medicine Water and milk supplies should be examined daily, and visiting nurses under the direction of a competent health officer should constantly patrol the community Adjunct dispensaries which should serve as schools of instruction in baby feeding and care, child welfare home sanitation and everything pertaining to healthy living should supplement the community hospitals When in addition to these agencies the people generally can be educated to see the benefits that would follow the periodic thorough examination of all in order to detect the first departure from the normal, then medicine will be able to render its highest service to mankind

It must be evident that if these hopes are to materialize, the practice of medicine must become more and more a state function That the tendency is in this direction, and that this should be encouraged for the public good, are not matters of doubt in my mind Only a few years ago some of the most eminent men in the profession combated earnestly state support of medical education They claimed that the state had no right to establish and maintain medical schools, and that such aid was not fair in competition with the proprietary schools, which at that time educated more than 90 per cent of the annual recruits to the profession Now, no one questions either the right or the duty of the state to establish and support medical schools, while the proprietary schools, having proved wholly inadequate and inefficient, have practically ceased to exist Even the man in the street sees the advantages which have resulted from these changes To state that a medical school is a proprietary one, in the sense generally understood by that term immediately condemns it with intelligent men Courts from the lowest to the highest in the land have uniformly held that the state has the right to maintain its own medical school, and also to pass on the merits of other schools both within and without its borders, to set up standards of medical education, to define the requirements of admission to medical schools, to submit those who wish to practice within its borders to certain intellectual and moral tests in order to pass on their professional fitness, and to revoke the licenses of the unworthy

Medicolegal

There Must Be Some Imprisonment for Illegal Practice — As to Residence

(Rutherford vs State (Texas), 187 S W R 481)

The Court of Criminal Appeals of Texas reverses a judgment against defendant Rutherford, who was convicted of unlawfully practicing medicine and his punishment assessed at a fine of $100 The reason given for this reversal and remanding of the cause is that Article 756 of the Penal Code of Texas provides that the punishment for unlawfully practicing medicine shall be by fine of not less that $50, nor more than $500, and by imprisonment in the county jail for any period of time not exceeding six months It is thus seen that the legislature has fixed some imprisonment as a minimum punishment the jury can assess The punishment assessed must be always within the minimum and maximum fixed by law This court and no other court in the state, can assess a punishment that the law does not authorize

Another thing should be mentioned While the trial court did not err in overruling a motion to quash the indictment on the grounds presented in the motion, yet the court of criminal appeals thinks that on another trial the indictment either should allege and the proof show that the defendant was temporarily residing in Johnson County if such was the fact, or if this was not the fact, then, as it was alleged that his residence was unknown the indictment should not only allege that he had not recorded a certificate authorizing him to practice in Johnson County but should further allege that he had no certificate authorizing him to practice, and proof that he had recorded no certificate would be prima facie proof that he had none by virtue of the statute

Sufficiency of Complaint and Validity of Provisions of Medical Practice Act

(Piper vs State (Wis) 158 N W R 19)

The Supreme Court of Wisconsin, in affirming a conviction of Defendant Piper of practicing medicine without a license, holds that the complaint did not fail to state an offense and was not fatally defective because it did not set forth the classes of medical and surgical practitioners exempted from the law The exemptions specified by Section 1435d, Statutes of 1915, are in a separate section, and need not be specified in the complaint These are defensive matters Nor was the complaint defective because it charged the commission of the offense on 'information and belief"

It was contended that the provisions of Section 1435, Statutes of 1913, arbitrarily attempt to define what is to constitute the practice of medicine and surgery, and condemns practices which do not, in substance, constitute the practice of medicine and surgery, and hence deprive persons of rights guaranteed them by Section 1, Article 14, of the federal constitution, and Sections 5 and 11, Article 1, of the state constitution The defendant claimed on this point that the provisions of Section 1435f Statutes of 1913, penalizing all persons who shall append to their names the words or letters "Doctor, Dr, Specialist, M D, D O or any other title, letters, combination of letters or designation which in any way represents him or her, or may tend to represent him or her, as engaged in the practice of medicine surgery or osteopathy in any of its branches, or who shall for a fee or for any compensation of any kind or nature whatsoever, prescribe or recommend for like use any drugs or other medical or surgical treatment or osteopathic manipulation, for the cure or relief of any wound, fracture, bodily injury, infirmity or disease,   " are an arbitrary and unlawful classification as medical and surgical practitioners of persons who are not necessarily engaged as such practitioners, and thus deprives them of the liberty to do these things, contrary to their constitutional rights The contention overlooked the provision that the use of the words or titles so appended to *a name* is denounced by the law whenever they represent, or tend to represent, the person as a practitioner or medicine, surgery or osteopathy, *or if he as* such a practitioner does anything by way of treatment or gives a prescription for a fee All the prohibited acts are limited to persons who in fact do these things as practitioners of medicine, surgery or osteopathy When so applied, these regulations have been repeatedly held to be within the legislative power The court discovers nothing in these provisions which conflicts with the right of trial by jury in cases arising under the law The statute is a proper one for the regulation of the practice of medicine, surgery or osteopathy, and the provisions accomplish this purpose in a reasonable way

Requisites to Making Married Woman Liable for Medical Services for Son

(Davenport vs Rutledge (Texas) 187 S W R 988)

The Court of Civil Appeals of Texas, in reversing a judgment obtained by the plaintiff in this case on account for services rendered by him as a physician to the defendant s minor son, who had been injured by a railroad, says that at the time of the alleged services the defendant's husband was alive, and he and the defendant were living together as husband and wife The child was their offspring, living with them In order to make the defendant—the wife—personally responsible for the services, she must have entered into a contract with the plaintiff for services rendered necessary to her child If there was no such contract, and she only acquiesced or consented for the physician to treat the child this would not bind her personally or make her separate property liable It is not sufficient that she merely give an order or call in a physician, for in such case the presumption is that she does so as the agent of her husband whose duty it is to supply such things After the services were rendered, a mere verbal promise on her part to pay would not render her separate estate liable for the debt of the community, as it is called She would not be bound personally for the default of her husband by such verbal promise to pay his debt If the testimony of such verbal promise was admissible at all it was admissible only as a circumstance on the question whether she contracted for such services in the first instance A liability could not be founded against her on such verbal promise, made after the debt accrued, and if the judgment reversed was based on such promise, it was erroneous and without legal testimony Her mere acquiescence or consent for the physician to treat her child would not support the judgment

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Society Proceedings

AMERICAN SOCIAL HYGIENE ASSOCIATION, CENTRAL STATES DIVISION

Joint meeting with Chicago Women s Club Woman s City Club and Chicago City Club with the Chicago Medical Society participating held at Chicago Dec 14 1915

Dr William T Belfield, Chicago, in the Chair

SYMPOSIUM ON SYPHILIS

The Campaign for Social Hygiene

Dr William T Belfield, Chicago Fifty years ago personal liberty assured to every one the right to contract scarlet fever and diphtheria and scatter it among his fellows without interference by law The city did, however, recognize the duty of seeing that the remains were decently interred Today personal liberty assures to every one the right to contract syphilis or gonorrhea and to communicate it to his intimates, or to his bride or to his unborn children without interference by the law It does, however, recognize the duty to see that the remains are decently interred in the asylums for the insane, for the feebleminded, for the blind, in penitentiaries and in poorhouses, all of which derive a considerable percentage of their rapidly increasing population from the venereal diseases Illinois spends every year millions in mopping up the floor, but forgets to turn off the faucet Since the disasters wrought by syphilis, civic, economic and vital, are greater than those caused by scarlet fever in its community cost, syphilis is obviously the more important, but the public, for evident "reasons," refuses to employ against syphilis the effective measures that have long been used against scarlet fever, including compulsory notification and quarantine The proposed ordinance now in the hands of the health committee of the Chicago council carefully excludes these two features

I am convinced that the campaign for social hygiene in this country has been worth while, for it is generally conceded now to be not a new phase of religious mania, but the earnest effort of intelligent people to stem the tide of mental and physical degeneracy which is even now painfully apparent in our population Some states compel every male applicant for a marriage license to present a certificate of freedom from venereal disease and in other less progressive states like Illinois, multitudes of fathers demand the same assurance before giving up their daughters The dean of a large educational institution recently said that among 5 000 students the number acquiring venereal diseases had in five years dropped from about 18 to less than 2 per cent

No man contends that knowledge of venereal diseases will alone restrain young men from contracting them, but some of us do believe that this knowledge will reduce—indeed has already reduced—the contamination of wives and children with these infections, and that as it seems to me, should be the slogan of the entire social hygiene movement Keep the infection out of the family and out of the stock, and confine it, so far as may be, to those who voluntarily expose themselves

What Should Chicago Do for the Venereally Diseased?

Dr William A Pusey, Chicago It is a fair statement that there are in this country at least 5 per cent of syphilitics among the adult population I am not so familiar with the figures as to gonorrhea, but 20 per cent would probably be well within the figures Three methods of handling contagious diseases are (1) control of the routes of communication, (2) restraining the liberty of the infected person until the danger is past, and (3) control of the infectious disease as quickly as possible, thus rendering patients free from danger to others These methods are potentially applicable to the venereal diseases

Several methods attempt to control the diseases indirectly the inculcation of clean living, sexual restraint, high moral standards, the regulation or repression of vice, and the control of the liquor traffic These methods only scratch the surface In large measure they appeal only to the intelligent, the careful and the conscientious I confess to feeling hopeless as to the control of these venereal diseases by these indirect methods We immediately come in contact with the insistent force of the sexual appetite, against which indirect methods are in large part futile I do not minimize their importance and would not like to see a falling off in that feature of the crusade, but I believe that if we are to control venereal diseases we shall have to control them as diseases and not as moral problems In my judgment, control by isolation and quarantine is impossible in disease so widespread and contagious over so long a period

We are therefore reduced to the third method of attack Fortunately the medical profession is particularly well qualified to do this as regards venereal diseases, better as regards syphilis than any other infectious disease, and able to do a great deal in gonorrhea by controlling its infectiousness This puts us in position to act against them as public menaces, and justifies the establishment of means for taking care of these patients Medical institutions, hospitals and dispensaries are already doing it, but lack the equipment and support for effective work

The ideal condition would be to provide universal opportunity for treatment and, I would add compulsory treatment The essentials of such a crusade would be the organization of dispensaries and small hospitals for this purpose Such institutions should be well manned and equipped for diagnosis and treatment A social service and follow-up service is essential There should be also free and easy access to these dispensaries without embarrassing restrictions

Dispensaries should have evening hours so that patients may attend without sacrificing time from their work Such facilities should be free to the abject poor, but should also have provisions as to those able to pay small fees

The proposition as to the notification of venereal diseases sounds plausible in the abstract, but it is exceedingly difficult in the concrete, and in my opinion gets us nowhere It does not even give us statistics, and it is not necessary to have statistics to prove the menace and the prevalence of the venereal diseases Such statistics, as now provided for in eleven states, are notoriously unreliable and would be laughed out of any court Likewise isolation is impracticable for the 20, or even 10 or 5 per cent of the productive adult population of Chicago with venereal diseases which last so long a time

What the Chicago Health Department is Doing for the Venereally Diseased

Dr F O Tonney (Director, Municipal Laboratory), Chicago In 1910 a venereal clinic was established in the Iroquois Hospital, and the health department began to accept specimens for examination by the Wassermann reaction and for gonorrhea, collected from charity patients At present no venereal clinics are being operated by the department of health, although specimens for laboratory tests are being collected daily

The health department has always endeavored to do educational work The morals commission constitutes the chief agency of publicity and since its establishment in 1914 has collected and disseminated many valuable data The functions of the commission are to study all phases of sexual immorality and practices which tend to promote or restrict them, or which concern the physical and moral welfare of the inhabitants of the city with a view to their suppression, to study measures to rehabilitate prostitutes, to study prostitution and the venereal diseases, and take the legal action necessary to suppress houses of prostitution, to prosecute the owners keepers and inmates of such houses, to advise the prosecuting attorney and chief of police in relation to such matters, and to make reports of their findings to the mayor and the council and recommend legislation necessary to secure these objects The work of the morals commission is exemplified in their reports relating to conditions in dance halls and places of amusement While this secures publicity, it does not relate specifically to venereal diseases and does not form data for a campaign against such diseases In 1915 out of a total of 221 433 examinations by the board of health laboratory, there were 106,400 Wassermann tests and 347 for gonorrhea Although the laboratory has sufficient space, it must have more bacteriologists before free general service can be offered For treatment there are only the dispensaries of the medical schools and hospitals

The ordinance provides for report to the commissioner of health by number cases of venereal diseases by physicians and institutions having to do with such cases, giving information as to the danger of such persons to others They shall also distribute circulars of instruction for the prevention of the transmission of such diseases, and shall report such fact to the commissioner of health

Status of Chicago's Hospital and Clinical Facilities for Diagnosis and Treatment of Venereal Diseases

Dr. Oliver S Ormsby, Chicago I limit my remarks to what is being done in the treatment of syphilis in the dermatologic department of the Central Dispensary of Rush Medical College The older methods were simple, consisting of the use of mercury by mouth, by injection or by inunction, and the employment of potassium iodid, all of which methods, except the injections, could be carried out by the patient The present methods of treatment require more equipment more time and more money, but the results warrant these At the dispensary we employ salvarsan, with the proper apparatus to demonstrate the spirochete, and have a laboratory for Wassermann tests with a worker to make the tests and administer the salvarsan At present this man makes the blood tests in the morning and assists with the treatment in the afternoon Treatment is necessarily controlled by the blood and spinal fluid tests, and it is therefore necessary to have facilities for making these tests The department has had some assistance from the social service department, and later will have one worker devoting whole time to the work. The treatment is given in courses, five salvarsan injections and from twelve to twenty-four mecurial injections, controlled by the Wassermann reaction. The treatment depends on the stage of the disease. By this method the patients are kept under control better and are given a better chance to recover, and their relatives are better protected from infection. They get the same treatment as private patients. From the standpoint of public health the infectious cases are cleared up, preventing the spread of the disease. By having a social service others are protected, and associated patients are urged to take treatment. The worker also ascertains whether or not they are entitled to free treatment. Children are sometimes brought in who have been accidentally infected, and other members of the family may then be found to be infected. Those with active lesions in the mouth and other localities are soon rendered safe to go among their fellows, otherwise the danger would exist for several weeks. Contributions have enabled the dispensary to do this work, along with the efficient work of the superintendent and the cooperation of the department. Patients of the dispensary class are apt to neglect treatment. When the treatment is carried out as outlined, the patients realize the importance of regular attendance and lend their cooperation.

DISCUSSION ON SYPHILIS

DR. HUGO BETZ (Superintendent, Iroquois Emergency Hospital) Chicago: After we find cases positive there is no recourse for them whatever as to treatment. The health department at present is not able to take care of all the patients sent to them because of lack of appropriations.

DR. L. W. BREMERMAN, Chicago: The work at the Central Free Dispensary is excellent but there are many other free dispensaries in Chicago at which venereal diseases are scientifically treated, while many have meager or no proper equipment. I think the trouble with the dispensaries for the treatment of venereal diseases is that they are run at the wrong time of day. Dr. Pusey's suggestion of night clinics is excellent. One fault with the dispensaries is that patients are not properly instructed regarding the time when they are cured. Many feel that when the acute symptoms have disappeared, they are free from infection and cease coming. Another evil is the drugstore dispensary. There should be some regulation in regard to druggists' treating venereal diseases. I always endeavor to ascertain from patients how many attacks they have had before and whether they have been treated at a drugstore or by a physician, and find in a great many instances that they have had preliminary treatment from the corner druggist.

MR. JOHN E. RANSOM (Superintendent, Central Free Dispensary), Chicago: We shall never solve the problem of venereal diseases, until we have solved the problem of sexual immorality, and we will agree that that is an educational matter. Until we have trained the people in matters of self-control and in a sense of their responsibility to the community, we shall not have solved the problem. One of the great shortcomings of what we have done in the past is that *we have not cured the patients*. I have looked over the records of our institution for 1914 and 1915 with reference to cases of syphilis and gonorrhea. Those who came once constitute the largest number, those who came twice the next, and so on, until the number who came a sufficient number of times to be cured are very few indeed. This is the problem of the administration of the institution, and so far as it fails to keep patients under treatment until cured, it is failing as a medical institution.

In the Massachusetts General Hospital, in which social service work was first started, they have a worker devoting whole time to syphilis, and during the first ten months in the special clinic for the treatment of syphilis they had 2,114 patients. These made 10,326 visits, or an average of five visits to each patient. In the ten months about 10 per cent. of the patients were lost. In a city like Boston, and this is more true of Chicago, a large percentage of syphilitics are transients whom we expect to lose.

In our institution we are treating syphilis in every department. Being a layman, I am not able to say whether it should be treated in all the departments or not, but taking the parallel of tuberculosis the greatest advances have been made in special clinics, hospitals, dispensaries and sanatoriums for this one disease. I believe that when syphilis and gonorrhea are treated in the same way, we shall be doing better work than we are doing today.

DR. B. N. NOVY, Chicago: We have in Chicago six colleges, three dispensaries and many hospitals which have dispensary connections. We see 8,066 cases in these dispensaries. They all have day hours and none has night hours. Two types of patients come to the dispensaries: one is the chronic disease carrier. He comes only when he has an acute exacerbation and stays until the acute attack is past or he has no discomfort and then leaves. The other class is the temporarily unemployed class who come for treatment. They also stay until they can secure a position. Not more than 5 or 10 per cent. of patients are cured at our dispensaries for the reason that they do not come back, or do not have the time to come back. If we had night dispensaries they would be able to come until cured.

DR. ANNA E. BLOUNT, Oak Park, Ill.: We have made two mistakes: in treating effects instead of determining causes and in treating the physical side of the question as though it were a physical question instead of a psychologic, a social an economic question. When prostitution is not a trade for women we shall not have a venereal problem. I believe the reason we have so much venereal disease at present is that our girls cannot earn a decent economic independence. Without treating the social question I believe we are only tinkering with results in all these matters, particularly as to medical cure and medical prophylaxis. I think the cure when we get it will be educational, just as it was in tuberculosis.

DR. RACHELLE YARROS, Chicago: We are doing less for cases of gonorrhea, and they are equally dangerous, as syphilis. The treatment of venereal disease is an expensive luxury, and few can afford it.

MR. W. A. CLARK (Secretary, Chicago Branch American Social Hygiene Association), Chicago: The survey contemplated is yet somewhat hazy. A group connected with the City Club and other organizations are hoping we may be able to get together persons and funds with which to make such a survey. The persons interested are men interested in social questions, not medical men. We are approaching it from the standpoint of a social problem. The assistance of men who have specified knowledge of these conditions and who are trained as public health men will aid us in getting the funds necessary to make this survey.

DR. B. C. CORBUS, Chicago: We have in Chicago, I believe, twenty-seven dispensaries. The largest are the Northwestern, the Postgraduate, the Central Free Dispensary and the University of Illinois. Today I interviewed the heads of each of these clinics as to what percentage of patients they are turning out cured. One said 25 per cent. I challenged the statement. In fact, only 1 or 2 per cent. are discharged as cured. We should consider this problem under education, isolation and treatment of cases and also under clinical facilities. Few of us realize what other cities are doing. In New York they are far ahead of Chicago. In England they have the famous Lock Hospital, known throughout the world, for the treatment and care of these cases. Chicago is not doing her share.

MR. SAMUEL E. THRASHER (President, Committee of Fifteen), Chicago: I can speak of what the Committee of Fifteen is trying to do. We do not believe we can solve the problem of the social evil in a day in a city like Chicago or anywhere else. We are dealing with only one phase of this problem, and that is commercialized vice. The great cause of commercialized vice, as we see it, is threefold: (1) undeveloped mentality, 80 per cent. of women in prostitution are subnormal; (2) overdeveloped animalism on the part of men, and (3) that avarice which commercializes these two weaknesses of human nature. So long as men and women make money out of this business—and it is a large commercialized business in Chicago today—we are not going to get far in solving this problem The Committee of Fifteen aims to destroy the profitable business of prostitution If for no other reason than for the promotion of the public health, prostitution should be suppressed

Dr A. W Stillians, Chicago In the past our failure has been to convince the patient that it is necessary for him to come back We have also failed to disabuse his mind of the suspicion that if the physician wanted him to come back it was from some ulterior motive The social service worker has time to acquire the confidence of the patient and power over him Soon after the establishment of social service in the county hospital it was recognized that an evening clinic was needed, that there were many patients who could not get to the day clinics, because of their work and the danger of losing their positions At the request of Mrs Ira Couch Wood of the Illinois Training School for Nurses, an evening pay clinic for skin diseases was established Lately it has kept open two nights a week The average attendance has been seven patients an evening, and there have been forty-nine cases since June These forty-nine patients made 192 visits Only eight patients made less than five visits, seventeen made more than five A large proportion of them, of syphilis, are clinically free and Wassermann free The urologic department of the clinic has been open only a short time, but has had twelve cases, with thirty visits We make moderate charges—$1 for consultation and medicine We found that was unjust because some required expensive medicines Now we charge 50 cents for consultation and a little over the wholesale cost of the drugs For salvarsan we charge something over the wholesale cost of the drug The Wassermann reaction costs $1, and the other laboratory examinations are made free Our financial report so far is not very good because at first we treated a good many free We treated sixty-two without recompense, but this is unnecessary, in our experience There are a few who are working at a wage insufficient to take care of them and their dependents, and we are glad to treat them We got far enough in October to feel that we could pay the physicians This I believe will have much to do with making efficient service, as many young men of high caliber and ability are willing to go into the work who would not otherwise feel able to do so

Mr Arthur B Farwell, Chicago It is all right to take care of women and men diseased, but it is a great deal better to prevent them from being diseased I speak from an experience of nearly fifty years in this work, and to me, in any of these questions the greatest power is religion, second, education, third, agitation, and fourth, the law

Dr Clara P Seippel, Chicago I should like to mention what Chicago is doing for venereally diseased children Chicago has the only institution in the world, so far as I know that cares for and educates these children while under treatment What Chicago should do for these children is also a question that I think will develop along with these other problems In 1911 in connection with the general welfare exhibit, Dr Grace Meigs and I made a survey of twelve leading hospitals and dispensaries, and were amazed to learn that 1,000 little girls came there annually afflicted with vulvovaginitis This problem will have to be considered with the venereally diseased persons and it will be necessary for the state to provide for them

Dr Mary G McEwen, Chicago The General Federation of Women's Clubs is engaged in a nation-wide campaign along this line At the last meeting of the Federation in New York the only resolution endorsed by the federation was one authorizing all clubs in New York to cooperate with boards of health and other agencies to secure adequate facilities for the diagnosis and treatment of venereal diseases, and at present a nation-wide campaign is in progress asking each club to arouse interest in the subject passing out leaflets, making surveys of local conditions a follow-up program and devising ways and means to make it practical in their own community, so that in every club in the nation they will be looking toward Chicago to find what a big city should do and then they will apply it to the smaller cities

Dr Charles S Bacon, Chicago I should like to ask Dr Pusey in his closing discussion to tell us whether he thinks agencies now existing, the dispensaries now handling this work, are probably sufficient satisfactorily to meet the situation, or would it be desirable for the municipality, or the county, to undertake to establish dispensaries and institutions for the handling of this question, just as they have for the handling of the tuberculosis question?

Dr Edward A Fischkin, Chicago It was the expression in Berlin of the German National Society for the Suppression of Venereal Diseases about three years ago that neither character, religion nor anything else would eradicate human passion The only thing that is feasible is to attempt to eradicate the disease Preventive medicine has succeeded in many other fields Dr Pusey has omitted to pay attention to the possibility of curing the disease by the large army of physicians Medical armies are not cured in dispensaries but the diseases of society are taken care of by the army of physicians outside the dispensaries, and if we want to eradicate the venereal diseases the patients must have the chance to be treated by the great army of medical men The dispensaries in Chicago, as we have seen, take care of only 8 000 while according to the figures given by Dr Pusey there must be at least 50 000 afflicted We physicians who have somewhat more chance to deal with these diseases see a large number of patients who are unable to pay It will be of advantage in gaining our point if all possible agencies carry propaganda to the workingman and others to induce them to get over their disease There are larger facilities than those of the hospitals and dispensaries, there are the aid societies of the workingmen the insurance societies, that would carry propaganda to them In Berlin that was the first effort to carry propaganda These persons should not be treated as outcasts I think these agencies are of greater benefit than all the dispensaries and hospitals which the community can establish

Dr Bertha Van Hoosen Chicago I believe the establishment of more and more dispensaries will do little toward the eradication of gonorrhea If we would tell women that they have gonorrhea whether innocently or otherwise, and that it is going to destroy their sexual organs, and take it seriously and put them in a hospital and treat them in a careful, conscientious way, we would accomplish something

Dr William A Pusey Chicago In answer to Dr Bacon I do not think present hospital and dispensary facilities are nearly adequate to handle all cases but I do think that the first step in a practical way would be to improve present services and imbue them with the importance of the sanitary work they have to do I think a desirable thing to do would be to have established one hospital in the down-town district, not only for serving that district, but as an object lesson

With regard to Dr Van Hoosen's remarks, to take it seriously, I do not think that any one who talked tonight failed to consider the seriousness of gonorrhea I challenge her statement that it is necessary to take these patients into the hospital It is ideal but we are dealing with world and not with Utopia They can be handled on their feet, and we can handle the problem better practically in that way

One point Dr Bremerman brought out I would like to have drug clerks prevented from treating syphilis and gonorrhea I sympathize with Dr Blount's and Dr Yarros' ideas but I was asked to talk on a medical topic I am just as interested in seeing people happy and comfortable as they are I do not think we can wait for a social revolution before tackling venereal diseases I have a feeling of regret when the moral issue is raised Of course it is a moral issue The discussion tonight was on a disease that is mixed up with a moral question, but we are dealing with disease and it can be handled as disease, and unless so handled we shall never get anywhere We cannot control the sexual appetite We can reach a group like this, of educated people, but not the submerged tenth and they are the real menace We must handle it as a matter of disease Education and religion will reach a certain number, and I am interested in doing that to as great an extent as possible, but I am convinced that we must tackle it as a physical proposition The problem goes back to Adam The sexual appetite is not an instinct, it is one of the fundamental appetites of man, and sexual contact can be controlled only within moderate limits The sexual appetite in the intelligent, the careful, the conscientious can be controlled and restrained It is a biologic function that cannot be restrained beyond certain limits, and we have got to deal with venereal diseases as diseases I repeat that I am ready to support all efforts for the betterment of mankind and improve the moral status, but we must not forget that man is man—and I mean the woman too—and possesses fundamental instincts that cannot be gotten away from

What this organization can do is this It can make a survey I should like to see that done we can make efforts to better and increase the provisions for taking care of the venereally affected We shall secure benefit every time we establish a well equipped well manned dispensary for that purpose Dispensaries such as outlined tonight will do inestimable good They will not eradicate the disease I shall not live to see that nor will some of the younger, but in time venereal diseases can be controlled just as definitely as yellow fever The problem is simpler than that of tuberculosis, and morally it is like yellow fever and it is amenable to sanitary handling It was a pleasure to hear what Dr Ormsby is doing and Dr Stillians It is a revolution to hear about social service work being done in venereal disease

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1 Acidosis in Acute and Chronic Disease—From his studies Frothingham thinks it fair to conclude that the study of the hydrogen ion concentration in the urine is not reliable as an index of acidosis, that evidence of acidosis appears at times in certain diseases, while in other diseases no evidence of it is found Those diseases which showed an acidosis at times by some of these tests are diabetes, chronic nephritis, pneumonia, acute articular rheumatism and several acute febrile conditions in the miscellaneous group Cases of exophthalmic goiter epilepsy, syphilis, chronic cardiac disease, subacute nephritis lung abscess, and many in the miscellaneous group distinctly did not show any evidence of acidosis by these tests The results in the cases of primary anemia, gastric cancer, Addison's disease, and cirrhosis of the liver were not so clearly defined and in some of the tests suggested a slight acidosis It is evident from these tests that the acidosis found in diabetes is due to different causes, in part at least, from those that produce it in other conditions It also seems likely that the acidosis met with in different diseases is due to various causes, since the response to these tests varies somewhat in the different conditions Of these tests, either the estimation of the carbon dioxid tension in the alveolar air or the so-called soda tolerance test showed variation from the normal in all the cases of acidosis They also seem to be of value in detecting the degree of acidosis

3 Action of Female Remedies on Excised Intestine—The results of this work indicate that the members of the group of female remedies that act on strips of uterus exhibit practically an identical action on strips of intestine, both in manner and degree of action The other drugs of the group have no effect on either uterus or intestine This shows that they in no sense act specifically on the uterus The following depressed the intestinal strips actively in the concentrations used Jamaica dogwood, pulsatilla, unicorn root and figwort, while valerian (the oil is very depressant) and lady's-slipper are less active, and skullcap, wild yam, liferoot and false unicorn depress very slightly The following are practically devoid of action blessed thistle, cramp bark maple bark black haw passion flower, motherwort and squaw vine They have no effect on the smooth muscle of arteries in rather concentrated solutions

5 Origin and Conduction of Cardiac Impulse—Eyster and Meek found that in the dog's heart the cardiac impulse arising within the upper part of the sino auricular node, is conducted to the right auricle and to the auriculoventricular node by two separate paths The former is a diffuse path represented by the contact of the right auricle with the node The latter path is either also diffuse in nature, involving connections above below and on the intercaval borders of the node or there are numerous possible paths offering varying degrees of resistance to the passage of the impulse

6 Metabolism Study of Goiter—A study was made of the metabolism of nitrogen phosphorus sulphur, calcium and magnesium on a patient with exophthalmic goiter, with apparently a slight hypothyroidism and responding readily to treatment The study was made in five periods of five days each, including periods of thyroid and thymus treatment In the preliminary period without treatment a marked disturbance of metabolism was noted, with pronounced losses of nitrogen phosphorus and magnesium and a practical balance of calcium and sulphur Thyroid treatment markedly stimulated the metabolism of all elements determined, this stimulation continuing long after treatment was stopped Considerable retention of all elements was brought about, the maximum effect being reached sooner in the case of calcium and magnesium than in the case of nitrogen, sulphur and phosphorus The effect of thymus administration on the metabolism was less marked than that of the thyroid, but appeared to be distinct In the thymus period the retention of all elements was depressed When thymus administration ceased the rate of retention for all elements immediately increased Thus thymus treatment appeared to depress the stimulating effect of the thyroid on metabolism, which supports the view of a possible antagonistic action of these glands such as has been suggested by others on the basis of indirect evidence The administration of thyroid caused diuresis immediately Thymus treatment had the opposite effect, leading to a retention of water, with marked decrease in urine volumes on constant water ingestion The weight of the patient decreased on thyroid treatment and increased after withdrawal and on thymus administration Following thyroid treatment there was a progressive decrease in urinary indican excretion This may indicate lessened intestinal putrefaction

7 Changes in Form of Ventricular Complex—A series of cases is reported which yielded electrocardiograms showing abnormal ventricular complexes These abnormalities consist in changes in the initial portion of the complexes, the Q, R, S group and differ from those yielded by contractions caused by ectopic stimuli and from those changes which occur with bundle-branch block These observations are taken by Robinson as evidence for the belief that in cases in which the ventricular complexes constantly show certain abnormal forms, there are functional changes in the heart which prevent the normal recovery of intraventricular conduction during diastole It is shown that changes in form of the ventricular portions of the electrocardiogram may occur synchronously with functional changes in the heart, and evidence is offered for the belief that certain abnormalities in the form of the electrocardiogram indicate functional derangement of the ventricles

8 **Artificial Respiration and Low Blood Pressure**—It is suggested by Simonds that in cases of shock in man, associated with low blood pressure not due to hemorrhage, the artificial production of dyspnea or the voluntary increase of the rate and depth of respiration by the patient may lead to improvement

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17 Case of Shell Shock E Ryan—p 1095
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18 **Foreign Body in Tumor of Anterior Abdominal Wall**—Save for a tumor the size of a hen's egg just below and external to the umbilicus, the examination of the abdomen in Henry's case was negative The mass was ill defined but was clearly in the abdominal wall attached to and movable with the contractions of the right rectus muscle White blood cells were 9,600, red blood cells, 6 300 000, there was no occult blood in the stools and the systems were normal The mass was considered to be a tumor arising from the rectus sheath likely a fibroma On attempting to excise the growth, it was found softer than expected and was torn through, a soft center of inflammatory tissue was exposed and sticking upright in this a pointed object was seen which was pulled out with artery forceps This was a fish bone about 1½ inches long, the sharp point nearer the skin surface and lying perpendicular to the plane of the abdominal wall The mass of inflammatory tissue was dissected free and down through the rectus sheath and muscle to the peritoneum, a portion of which had to be removed with the tumor Underlying this piece of peritoneum was adherent omentum which had to be tied off At no point was there any adherent bowel and no hernia existed

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21 Greetings from Surgeon General's Library F H Garrison Washington D C—p 366
22 Fasting C D Spivak Denver—p 368
23 Diagnosis of Menstrual Reflux Through Tubes J N Hall Denver—p 373
24 Infections of Seminal Vesicles W M Spitzer Denver—p 376
25 Two Years Experience with Much's Tuberculin in Treatment of Tuberculosis S Simon Denver—p 381

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26 *Diseased Conditions of Salivary Glands and Their Ducts D Roy Atlanta—p 143
27 Ischemic Myositis (Volkman's Contracture) Report of Two Cases C C Harrold Macon—p 149
28 *Ideal Operation for Retrodisplacements of Uterus W W Battey, Jr, Augusta—p 152
29 Case of Gunshot Wound of Spinal Cord Laminectomy Removal of Bullet, Recovery W L Cooke, Columbus—p 155
30 Conservation of Tissue Restoration of Function Not Removal of Organs Should Be Aim of Surgery F W McRae, Atlanta—p 158

26 Abstracted in The Journal, May 6, 1916, p 1491

28 **Operation for Retrodisplacements of Uterus**—In the method described by Battey the round ligament is caught in a pair of forceps at a point which when drawn up seems to take up the laxity, and made taut With a needle threaded with fine linen the proximal and distal ends are stitched together This gives us a loop of the round ligament A second and third stitch one-half inch apart toward the end of the loop are introduced through both sides of the ligament and tied, the third stitch being left long With a pair of curved forceps the internal ring is entered and the peritoneal investment of the round ligament is dessected downward and the peritoneum is punctured at a point as near as possible to the first stitch in the ligament The linen stitch left long is caught in forceps and the ligament is pulled through the artificial opening With No 1 chromic catgut the ligament is sutured to the under surface of fascia of the rectus by interrupted sutures The operation is, in a measure, extraperitoneal and the author says there is no likelihood of an intestinal obstruction taking place

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32 Clinical Study of Lobar Pneumonia F Tice and R F Herndon Chicago—p 388
33 Community Nursing H K Scatliff, Elgin—p 394
34 Carriers of Gonococcus E H Eastman Chicago—p 396
35 Surgical Treatment of Acute Epididymitis C M McKenna Chicago—p 398
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49 *Antigenic Properties of Beta Nucleoproteins H G Wells Chicago—p 11
50 Changes in Urea Content of Blood and Tissues on Exclusive Oat Diet H B Lewis and W G Karr Urbana Ill—p 17
51 *Action of Sodium Citrate and Its Decomposition in Body W Salant and L E Wise Washington D C—p 27
52 *Kafirin an Alcohol Soluble Protein from Kafir Andropogon Sorghum C O Johns and J F Brewster Washington D C—p 59
53 *Some Proteins from Jack Bean Canavalia Ensiformis D B Jones and C O Johns Washington D C—p 67
54 *Proteins of Peanut Arachis Hypogea Globulins Arachin and Conarachin C O Johns and D B Jones Washington D C—p 77
55 Modified Benedict and Hitchcock Uric Acid Standard Solution L J Curtman and M Freed New York—p 89
56 Occurrence and Physiologic Significance of Flavone Derivatives in Plants K Shibata, I Nagai and M Kishida Tokyo—p 93
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21 Greetings from Surgeon General s Library I H Garrison Washington D C—p 366
22 Fasting C D Spivak Denver—p 368
23 Diagnosis of Menstrual Reflux Through Tubes J N Hall Denver—p 373
24 Infections of Seminal Vesicles W M Spitzer Denver—p 376
25 Two Years Experience with Much s Tuberculin in Treatment of Tuberculosis S Simon, Denver—p 381

Georgia Medical Association Journal, Augusta

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26 *Diseased Conditions of Salivary Glands and Their Ducts D Roy, Atlanta—p 143
27 Ischemic Myositis (Volkmann s Contracture) Report of Two Cases C C Harrold Macon—p 149
28 **Ideal Operation for Retrodisplacements of Uterus* W W Battey, Jr, Augusta—p 152
29 Case of Gunshot Wound of Spinal Cord Laminectomy, Removal of Bullet, Recovery W L Cooke Columbus—p 155
30 Conservation of Tissue, Restoration of Function, Not Removal of Organs Should Be Aim of Surgery F W McRae, Atlanta—p 158

26 Abstracted in THE JOURNAL, May 6, 1916, p 1491

28 **Operation for Retrodisplacements of Uterus**—In the method described by Battey the round ligament is caught in a pair of forceps at a point which when drawn up seems to take up the laxity, and made taut With a needle threaded with fine linen the proximal and distal ends are stitched together This gives us a loop of the round ligament A second and third stitch one-half inch apart toward the end of the loop are introduced through both sides of the ligament and tied, the third stitch being left long With a pair of curved forceps the internal ring is entered and the peritoneal investment of the round ligament is dessected downward and the peritoneum is punctured at a point as near as possible to the first stitch in the ligament The linen stitch left long is caught in forceps and the ligament is pulled through the artificial opening With No 1 chromic catgut the ligament is sutured to the under surface of fascia of the rectus by interrupted sutures The operation is in a measure, extraperitoneal, and the author says there is no likelihood of an intestinal obstruction taking place

Illinois Medical Journal, Chicago

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31 Prevention of Disability Following Fracture of Os Calcis C R G Forrester, Chicago—p 385
32 Clinical Study of Lobar Pneumonia F Tice and R F Herndon Chicago—p 388
33 Community Nursing H K Scatliff, Elgin—p 394
34 *Carriers of Gonococcus* E H Eastman Chicago—p *396*
35 Surgical Treatment of Acute Epididymitis C M McKenna, Chicago—p 398
36 Seminal Vesiculitis Indications for Operative Interference, Report of Case E W White Chicago—p 400
37 Restricted Milk Diet for Removal of Dropsies N S Davis, Chicago—p *404*
38 Nephritic Crisis L M Bowes Chicago—p 408
39 Case of Bichlorid of Mercury Poisoning Successfully Treated by Sodium Acetate and Sodium Bicarbonate M S Pedott, Chicago—p 410
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Iowa State Medical Society Journal, Des Moines

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43 Dental Foci of Infection Their Cause and *Prevention* E A Schrader Independence—p 501
44 Bronchial Asthma T R Jackson Albia—p 509
45 Postoperative Management of Surgical Cases C J Rowman, Iowa City—p 511
46 Diagnosis of Gastric and Duodenal Ulcer E A Merritt, Council Bluffs—p 517
47 Reflexes of Appendix H H Ennis Baker—p 520

Journal of Biological Chemistry, Baltimore

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48 New Constituents of Milk Distribution of Phosphatides T B Osborne and A J Wakeman New Haven, Conn—p 1
49 *Antigenic Properties of Beta *Nucleoproteins H G Wells Chicago*—p 11
50 Changes in Urea Content of Blood and Tissues on Exclusive Oat Diet. H B Lewis and W G Karr Urbana Ill—p 17
51 *Action of Sodium Citrate and Its Decomposition in Body W Salant and L E Wise Washington D C—p 27
52 *Kafirin an Alcohol Soluble Protein from Kafir Andropogon Sorghum C O Johns and J F Brewster Washington D C—p 59
53 *Some Proteins from Jack Bean, Canavalia Ensiformis D B Jones and C O Johns Washington D C—p *67*
54 *Proteins of Peanut Arachis Hypogea Globulins Arachin and Conarachin C O Johns and D B Jones, Washington D C—p *77*
55 Modified Benedict and Hitchcock Uric Acid Standard Solution L J Curtman and M Freed New York—p 89
56 Occurrence and Physiologic Significance of Flavone Derivatives in Plants K Shibata, I Nagai and M Kishida Tokyo—p *93*
57 Protein Copper Compounds T B Osborne and C S Leavenworth New Haven Conn—p 109

58 *Chinese Preserved Eggs—Pidan K Blunt and C C Wang Chicago—p 125
59 Composition Especially Hydrogen Ion Concentration of Sea Water in Relation to Marine Organisms J F McClendon Minneapolis—p 135
60 *Dietary Deficiencies of Maize Kernel E V McCollum N Simmonds and W Pitz Madison Wis—p 153
61 Perfusion Pump F B Kingsbury Minneapolis—p 167
62 Mechanism of Diffusion of Electrolytes Through Membranes of Living Cells J Loeb New York—p 175
63 Elimination of Malates After Subcutaneous Injection of Sodium Malate L E Wise Washington D C—p 185
64 *Relation Between Water and Glucose Concentration of Blood A Hiller and H O Mosenthal Baltimore—p 197
65 Folin and Denis Method of Nitrogen Determinations by Direct Nesslerization and Its Application to Spinal Fluids R L Kahn New York—p 203
66 Effects of Feeding Proteins of Wheat Kernel at Different Planes of Intake E V McCollum N Simmonds and W Pitz Madison Wis—p 211
67 *Urinary and Fecal Output of Calcium in Normal Men C F Nelson and J L Williams Lawrence Kan—p 231
68 *Calcium and Magnesium Content of Normal Urine C F Nelson and W E Burns Lawrence Kan—p 237
69 Influence of Carbohydrates on Accuracy of Van Slyke Method in Hydrolysis of Casein E B Hart and B Sure Madison Wis—p 241
70 *Method for Measurement of Urea Excreting Function of Kidneys T Addis and C K Watanabe San Francisco—p 251
71 *Pancreatic Diabetes in Dog Influence of Pylorus Exclusion and of Gastrectomy on Effects of Pancreatectomy J R Murlin and J E Sweet Philadelphia—p 261
72 *Influence of Sodium Carbonate on Human Diabetes J R Murlin and L F Craver, New York—p 289
73 Relationship Between Oxidase Activity of Plant Juices and Their Hydrogen Ion Concentration H H Bunzell Washington D C—p 315
74 Hitherto Neglected Factor Affecting Determination of Minute Quantities of Creatinin A Hunter and W R Campbell Toronto Canada—p 335

49 **Antigenic Properties of Beta-Nucleoproteins** —The so-called beta-nucleoproteins obtained from various tissues by extracting with boiling water Wells says, possess definite antigenic properties demonstrable by the anaphylaxis reaction As there are but few known proteins that retain their antigenic capacity after boiling this observation may indicate something as to the nature of the protein complex of beta-nucleoproteins The proteins of alpha-nucleoproteins are on the contrary, very susceptible to chemical and physical changes Beta-nucleoproteins from beef pancreas, beef spleen, and pig pancreas, seem to be similar but not identical, so far as can be determined by the anaphylaxis reaction

51 **Action of Sodium Citrate, Its Decomposition in Body** —Salant and Wise found that sodium citrate disappears rapidly from the circulation after intravenous injection into cats and dogs, but this is retarded when the doses are repeated Large doses of sodium citrate when given by the mouth render the urine alkaline Only negligible quantities are sometimes found in the urine and in the blood after feeding sodium citrate The toxicity of sodium citrate when given intravenously depends on the rate of injection, the fatal dose varying between 0 4 and 1 6 gm per kilo (approximately), but about 70 mg may produce symptoms Only large amounts of citrate are toxic when ingested Large doses given subcutaneously showed cumulative action No citrate was found in the urine when doses under 0 5 gm per kilo were given intravenously The toxicity of sodium citrate depends on the rate of its oxidation in the body Sodium citrate mixed with blood in the proportion of 1 100 inhibited coagulation for four days when kept at a temperature of 10 C

52 **Kafirin, Alcohol Soluble Protein from Kafir, Andropogon Sorghum** —A new alcohol soluble protein has been isolated by Johns and Brewster from kafir seeds, which constitutes more than one-half the protein in the seed This protein has been named kafirin Kafirin resembles zein in its ultimate composition, but is different in physical properties It contains tryptophan and apparently lysin, both of which are lacking in zein An analysis of kafirin by the Van Slyke method shows quantitative differences between kafirin and zein

53 **Proteins from Jack Bean** —Two globulins canavalin and concanavalin, and an albumin of the legumelin type have been isolated by Jones and Johns from the jack bean The distribution of nitrogen in canavalin and in the albumin has been determined

54 **Proteins of Peanut, Arachis Hypogea** —Two globulins have been isolated by Johns and Jones from the peanut These have been named arachin and conarachin Arachin contains 0 4 and conarachin 1 09 per cent of sulphur Arachin gave 4 96 and conarachin 6 55 per cent of basic nitrogen, the latter being the highest percentage of basic nitrogen recorded for any seed protein From the results obtained it seems probable that peanut press cake will prove to be highly effective in supplementing food products made from cereals and other seeds whose proteins are deficient in the basic amino-acids Feeding experiments are already in progress to determine the nutritive value of combinations of peanut proteins with other proteins obtained from the more extensively used seeds

58 **Chinese Preserved Eggs—Pidan** —This paper gives the results of analysis of a kind of Chinese preserved eggs called pidan The Chinese and other Oriental people preserve eggs not necessarily to keep them unchanged, but to make various new substances—a process analogous to the production of cheese from milk The products have been little studied and the literature on the subject is therefore limited The following changes have been shown to take place during the formation of pidan from fresh ducks' eggs (1) water in large quantities has been transferred from the white to the yolk and water has been lost from the white to the outside, (2) the ash and the alkalinity of ash have increased in a way similar to that of other eggs preserved in alkali, (3) the ether extract has decreased and its acidity is high, (4) both total and lecithin phosphorus have decreased, (5) the noncoagulable nitrogen has increased and also the ammoniacal nitrogen the latter to an extraordinary degree, and the amino-nitrogen is high From these changes the conclusion is drawn that decomposition of the egg protein and of the phospholipoids has taken place The production of pidan from the fresh eggs is probably brought about through the agency of the alkali bacteria and enzymes

60 **Dietary Deficiencies of Maize Kernel** —The results of a systematic series of experiments with ground maize in which single or multiple additions of purified food substances were made are presented by the authors The proteins of the maize kernel contain all the amino-acids essentials for growth, but the proportions of certain of them are such that they are not utilizable to a high degree as the sole source of protein The maize kernel contains both the unidentified dietary factors, the fat soluble A and water soluble B The former is present in amount too small for the maintenance of growth at the maximum rate in rats, and regardless of how satisfactorily the maize kernel is supplemented in other respects failure of perfect nutrition will supervene within a few months unless some foodstuff containing the fat soluble A (butter fat, certain other fats leaves of plants etc) is supplied Maize contains an abundance of the unidentified dietary factor the water soluble B The inorganic content of the corn kernel is not of a character suitable for the promotion of growth The addition of purified protein and salts or of butter fat and salts to the maize kernel fails to induce physiologic well-being throughout the life of the animal The addition of protein and butter fat without salts forms a poorer food mixture than the pairs of additions first named

64 **Relation Between Water and Glucose of Blood** —Hiller and Mosenthal state that the water concentration of the blood in the normal individual often shows a variation of about 1 per cent during the course of a few minutes There is no assignable cause for this inconstancy Raising or lowering the sugar content of the blood does not give rise to a corresponding change in its concentration If glycemia plays a part in controlling the water content of the blood this is so slight in its effect that other factors, such as polyuria, etc, nullify its results, except in rare instances

67 **Calcium in Normal Men** —The average daily output of calcium in urine and feces varied in the cases studied by

Nelson and Williams from 0 420 to 1 016 gm Since the individuals examined were apparently in the best of health, of ages from 13 to 70 years, and furthermore, since they were all on absolutely unrestricted diets, guided solely by appetite, the results obtained represent normal values in calcium excretion From subsequent data from the same individuals covering four additional five-day periods during an interval of more than six months, these differences remained practically within the same limits The daily combined urinary and fecal excretion of calcium, on unrestricted diets, may thus be said to vary roughly from 15 to 25 per cent

68 **Calcium and Magnesium Content of Normal Urine**—The average daily output of calcium and magnesium (calculated as oxid) for five-day periods varied in the cases studied by Nelson and Burns from 0 1685 to 0 1468 gm of calcium and 0 1912 to 0 3130 of magnesium The daily output of calcium and magnesium of twenty-five apparently healthy individuals showed seventeen in which calcium was excreted in larger amounts than magnesium and eight in which magnesium predominated over calcium The largest amount of calcium (calculated as oxid) excreted in one day was 0 4875 gm, magnesium (calculated as oxid), 0 4160 gm The smallest amount of calcium was 0 0990 gm, magnesium, 0 1180 gm Either calcium or magnesium may be excreted by way of the urine in the larger amount, in the normal individual Whichever element predominates does so constantly, or very nearly so, and seems to be independent of the character of the food ingested

70 **Urea Excretion**—Urine and blood were collected simultaneously from rabbits, and the ratio

$$\frac{\text{gm of urea in one hour's urine}}{\text{gm of urea in 100 c c of blood}}$$

was determined before and after the destruction of one kidney by ligation of its ureter, while the animals were taking similar food and the same amount of water After the operation there was no decrease in this ratio as compared with the one found under similar conditions before operation, except when urea was injected The depression of the ratio after the operation when urea was injected is interpreted as indicating that the remaining kidney had less capacity for the excretion of urea than both kidneys before operation The fact that a depression of the ratio was found only when urea was injected is explained by Addis and Watanabe on the theory that the capacity of the remaining kidney was sufficient to meet ordinary demands, but showed itself defective under the strain of the additional work thrown on it by the urea injection

71 **Pancreatic Diabetes**—The results of this study suggest that the internal function of the pancreas may be closely akin to its external function, in that on the one hand (external), it provides for the complete neutralization of the acid contents of the stomach, thereby protecting the liver in its glycogenic function, and on the other (internal), it somehow preserves the proper concentration of hydrogen ions in the tissues for combustion of glucose

72 **Effect of Sodium Carbonate in Diabetes**—Murlin and Craver recommend the normal salt rather than bicarbonate of sodium and are certain it can be used intraduodenally up to 1 per cent with entire safety However if it is kept up too long there is possibility of sloughing Signs of this were seen in one case, although it was not serious The figures for blood sugar and specific gravity of the blood prove they think, conclusively, that there may be a bona fide reduction in the percentage of blood sugar by the alkali independently of any factor of dilution If this is true there is little reason to doubt that the alkali may in man as in the dog facilitate the actual oxidation of glucose Five cases were studied

Journal-Lancet, Minneapolis

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75 *Value of Temporary Cholecystostomy in Gastric Surgery L L McArthur Chicago—p 723
76 *Technic of Nerve Repair in Traumatic Injuries J F Corbett Minneapolis—p 725
77 *Actinomycosis, Report of Cases N O Ramstad Bismarck, N D—p 732
78 Forceps Operation R. S Hart Turton, S D—p 735
79 *Subcutaneous Administration of Fresh Human Blood P F Holm Wells—p 738
80 Arsenobenzol in Syphilis G E Brown, Miles City, Mont—p 740

75 **Value of Temporary Cholecystostomy in Gastric Surgery**—McArthur claims that in those cases of stomach surgery complicated by the need of biliary fistulae, whether gastro-enterostomies with or without excision of ulcer, resections of the stomach for malignant disease, or resection of ulcer-bearing areas, he has been able to obviate serious complications by the utilization of a temporary biliary fistula made in the normal gallbladder A double purse-string suture, inverting around a small rubber tube the fundus of the gallbladder, and bringing out the same tube through the abdominal incision or through an appropriately placed stab puncture, he says, complicates the stomach surgery but little more than the making of a stab puncture through the abdominal flank for peritoneal drainage This has been done for the past two years in a majority of his gastric operations During the early postoperative hours the bile being allowed to escape externally, fails to disturb the more or less paretic stomach

76 Abstracted in The Journal, Nov 25, 1916, p 1626

77 **Actinomycosis**—The best treatment of actinomycosis in Ramstad's hands has consisted in the removal of the primary focus, and as much of the infected tissue as possible, with prolonged free drainage Internally iodids were given to the point of saturation, and of late he has given copper sulphate internally and uses a solution of it for the daily dressing of the wounds The effect of the iodids is increased by giving them intermittently

79 **Subcutaneous Administration of Fresh Human Blood**—For several years Holm has injected fresh human blood subcutaneously under various conditions and for different diseases, with apparent benefit In a case of pernicious anemia, under frequent subcutaneous administration he has seen the blood picture go from 30 per cent hemoglobin to 85 per cent, and the red blood cells rise from 1,500,000 to over 4 000,000 in the course of a few months He says that a fairly large amount of blood (4 to 8 ounces or more) may safely be injected into the subcutaneous tissues, and perfect absorption take place, if ordinary aseptic technic be employed Blood which apparently is toxic to the patient when used intravenously may be injected subcutaneously without causing any undue reaction, and with apparent benefit Holm describes the technic he has used in hemorrhage of the newborn hemorrhage of gastric ulcer, splenomyeloid leukemia and in pernicious anemia

Kansas Medical Society Journal, Topeka

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81 So Called Chronic Gastro Intestinal Indigestion F C Boggs Waverly—p 341
82 Foul Breath Causes Other than Dental Caries J H Johnson Coffeyville—p 343
83 Minor Emergency Surgery N C Speer Osawatomie—p 348
84 Acidosis W T Brown Williamsburg—p 350

Michigan State Medical Society Journal, Grand Rapids

December 1916 XV No 12

85 *Sarcomatous Degeneration of Uterine Fibroids Report of Eighteen Cases F C Witter Petoskey—p 565
86 Empyema of Maxillary Sinus or Antrum C H Oakman, Detroit—p 572
87 Recent Methods of Transfusion with Indications and Technic H A Freund and W D Mayer Detroit—p 576
88 *Recent Progress in Treatment of Carcinoma of Uterine Cervix H W Hewitt Detroit—p 578
89 New Epoch in Practice C D Aaron Detroit—p 583
90 Mercuric Chlorid Poisoning Report of Case L J Dretzka Detroit—p 586
91 Tuberculosis Survey as Seen J D Dunlop, Alpena—p 587

85 Abstracted in The Journal, Sept 2 1916 p 768

88 Abstracted in The Journal, Sept 9, 1916, p 834

Military Surgeon, Washington, D C

December 1916 XXXIX No 6

92 Demography in so Far as it Relates to Vital Statistics of Armies W P Chamberlain, U S Army—p 583
93 Army Medical Records A G Wilde, U S Army—p 591

94 Control of Venereal Diseases W A Bloedorn, U S Army—p 599
95 Experiences with Venereal Diseases at Schofield Barracks L C Mudd U S Army—p 608
96 Treatment of Syphilis of Nervous System A S Clark, New York—p 616
97 Present Status of Blood Extract Coagulants and Blood Transfusion C G Levison U S Army—p 625
98 Another Viewpoint of Our Red Cross Work in Serbia S O Beasley—p 634 To be continued
99 Straddle Trench Cover D R Lucas New York—p 644
100 Sanitary Field Problems on Miniature Terrain R C Turck New York—p 649

Nebraska State Medical Journal, Norfolk

November 1916 I No 5

101 Diagnosis of Scarlet Fever H M McClanahan Omaha—p 131
102 Epidemiology of Scarlet Fever J C Moore Omaha—p 133
103 Complications of Scarlet Fever N Jones Omaha—p 137
104 What Shall Be Done with Indigent Tuberculous? S R Towne Omaha—p 141
105 Revised Classification of Nervous Diseases of Syphilitic Origin F E Coulter Omaha—p 145

New York Medical Journal

December 16 1916 CIV No 25

106 Medical Fees Among Primitive Man J Wright, Pleasantville——p 1173
107 Anorectal Injuries S G Gant New York—p 1177
108 Aural Complications of Grippe E B Dench New York—p 1180
109 Nose and Throat Complications and Sequelae of Grippe W L Culbert New York—p 1182
110 Removing Faucial Tonsils in Singers I W Voorhees New York—p 1183
111 Experimental Pathology of Goiter E Zueblin Baltimore—p 1186
112 Infantile Paralysis Treated with Immune Serum O H Petty Philadelphia—p 1190
113 Compulsory Health Insurance E V Delphey, New York—p 1191
114 Gastric and Duodenal Ulcers S Weiss New York—p 1193

New York State Journal of Medicine

December 1916 XVI No 12

115 *Influence of Syphilitic Infection in Gynecology and Obstetrics J W Bovee Washington, D C—p 569
116 Therapy of Bronchial Asthma W Freudenthal, New York—p 574
117 Causation and Treatment of Idiopathic Operative and Postoperative Anorectal Hemorrhage S G Gant New York—p 580
118 Removal of Tonsil as Prophylactic Measure H H Forbes New York—p 586
119 Report of Possibly Milk Borne Epidemic of Infantile Paralysis J C Dingman Spring Valley—p 589
120 Radium in Various Surgical Conditions J B Bissell New York—p 590
121 *Some Practical Experiences in Medical Inspection in Rural Sections W A Howe Albany—p 593
122 *Open Air Schoolchild as Type E Durney Buffalo—p 595
123 Health Insurance Its Relation to Preventive Medicine B S Warren and E Sydenstricker Washington, D C—p 597
124 *Compulsory Health Insurance from Point of View of General Practitioner* E V Delphey, New York—p 601

115 Abstracted in THE JOURNAL June 24 1916 p 2122

121 and 122 Abstracted in THE JOURNAL, June 3 1916 pp 1815 and 1816

Philippine Journal of Science, Manila

May 1916 XI No 3

125 Development of Twins and Other Polyembryos with Special Reference to Four Sets of Duck Twins E S Ruth Manila—p 109
126 *Influence of Fresh and Autoclaved Cows Milk on Development of Neuritis in Animals R B Gibson and I Concepcion Manila—p 119
127 Blood Pressure Picture of Filipinos I Concepcion and E Bulatao Manila—p 135

126 **Development of Neuritis in Animals**—The experiments reported on by Gibson and Concepcion indicate that the antineuritic vitamin is present in milk in slight amounts only and that the continued feeding of either fresh milk or autoclaved milk to animals (dogs and pigs) without suitable additions to the diet induces certain beriberi symptoms, namely, degeneration of the peripheral nerves, persistent edema and aphonia There is no evidence that autoclaving the milk for two hours has in any way affected its nutritive value Not even scorbutic changes have been observed At the best the antineuritic powers of the milk are so slight that in infant feeding the diet should be extended as soon as possible The young of healthy mothers probably come into the world with a reserve supply of the vitamin substances sufficient to tide them over nutritively until the time when, under natural conditions of life, they would begin to eat other foodstuffs

Southern Medical Journal, Birmingham

December 1916 IX No 12

128 Opportunities and Responsibilities R Wilson Jr, Charleston, S C—p 1029
129 Teaching and Practice W S Thayer Baltimore—p 1035
130 *Comparative Study of Kidney Functional Tests L J Desha J B McElroy and B W Fontaine Memphis Tenn—p 1041
131 *Case of Bichlorid of Mercury Poisoning Recovery C Thorington Montgomery—p 1045
132 Some Aspects of Southern Mortality J A Hodges Richmond, Va—p 1046
133 Empiricism in Surgery J H Blackburn, Bowling Green Ky—p 1054
134 Carrel Method of Wound Sterilization L Noland Birmingham—p 1056
135 Incontinence in Female Its Prognosis and Treatment G A Wall Tulsa Okla—p 1062
136 Alcohol Injections in Trifacial Neuralgia Report of Cases S R Benedict, Birmingham—p 1067
137 Development of Section and Its Membership J W Jervey, Greenville, S C—p 1071
138 Double Cavernous Sinus Thrombosis Following Obscure Mastoiditis W T Patton, New Orleans—p 1073

130 **Study of Kidney Functional Tests**—The nephritic test meal of Hedinger-Schlayer-Mosenthal was used by Desha in thirty-six cases In general, the results have demonstrated its value in diagnosis and prognosis as found by Mosenthal The results show a general agreement with the findings from the phenolsulphonephthalein and nonprotein nitrogen determinations While the test meal gives more information than either of the other two, it does not entirely replace them *Among blood nonprotein nitrogen values higher than 40 mg* per 100 c c, there is noted an absence of relationship between the magnitude of the value and the prospective fatal determination The Greenwald modification of the Folin determination of nonprotein nitrogen was used with satisfaction

131 **Bichlorid of Mercury Poisoning**—Thorington's patient swallowed one 7½ grain mercuric chlorid tablet The stomach was immediately washed out with about 3 gallons of water through a stomach tube The first returning water showed blood Several eggs were given and were retained Shock necessitated stimulants The most interesting feature of the treatment consisted in the large amount of water drunk much of which was retained and passed through the kidneys Every twenty minutes he was given a tumblerful until the amount drunk in twenty-four hours was about 3 gallons Each day the amount of water was lessened as gastric and cardiac complications arose However for several days the patient took from two to three times as much water as he usually consumed in a day The urine, in spite of the unusual amount passed, showed considerable albumin There was severe salivation and the heart was quite irregular both as to rhythm and tone

Vermont Medicine, Rutland

October 1916 I No 10

139 Pelvic Pain E H Ross St Johnsbury—p 281

November 1916 No 11

140 Simple Dressings for Simple Fractures G W Bartlett Bennington—p 313
141 Consideration of Certain Unusual Clinical Features of Cholecystitis and Its Surgical Treatment E Eliot Jr New York—p 318

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

Bulletin de l'Académie de Médecine, Paris

November 14 1916 LXXVI No 45 pp 369 378

1 Extra Articular Removal of Projectile in Condyle of Femur S Mercade—p 371
2 Epidemic Cerebrospinal Meningitis Twelve Cases A Azalbert—p 373
3 Reproduction in the Dog of Generalized Vaccinia L Camus—p 376

November 21 No 46 pp 379 402

4 Blunders and Injustice in Medical Terms Resulting from Misapprehension of Zoologic and Botanic Nomenclature and from Ignorance of the History of the Biologic Sciences (Meconnaissance de la nomenclature zoologique et botanique et de l histoire des sciences biologiques) R Blanchard —p 380
5 Elementary Forms of Delirium of Persecution J Lepine —p 389
6 *Modifications in Pulse and Arterial Pressure in Soldiers after a Battle (Modifications du pouls et de la pression arterielle observees chez le soldat au combat) Briscons and R Mercier —p 391
7 Cultivation of the Land and Its Productive Capacity to Population Compared in Germany and in France (De l'insuffisance des productions alimentaires de l Allemagne ses causes, ses consequences) E Maurel —p 393

6 **The Pulse and Blood Pressure Under Trauma** —Briscons and Mercier studied the blood pressure and the pulse in the men brought to the hospital during a recent offensive They found that men who had been knocked down, but not otherwise apparently directly injured by an explosion, had the pulse and blood pressure affected the same as the wounded men Those suffering from the effects of the air concussion alone had the pulse accelerated, but the blood pressure was not modified so much as in the first group On the other hand, men presenting distress and rapid breathing, suggesting organic trouble, but in reality merely the effect of emotional stress, had pulse and blood pressure approximately normal notwithstanding their impressive clinical appearance It thus proved possible to sift out at once the cases of actual organic injury

Grèce Médicale, Athens

1916 XVIII No 7 8 pp 13 16 French Supplement to Ia'riki Proodos

8 Recklinghausen's Disease Localizing in the Eyelids A Gabrielides —p 13

No 15 16 pp 29 32

9 Treatment of Congenital Dislocation of the Hip Joint (Sur le traitement des luxations congénitales de la hanche) P Nicolaidis —p 29 Concluded in No 17

Journal de Médecine de Bordeaux

November 1916 LXXXVII, No 13 pp 251 268

10 *Inherited Syphilis Masquerading as Tuberculous Glandular Lesions (Lesions dites bacillaires' et syphilis hereditaire) J Vergely —p 251
11 *Treatment by the Nonspecialist of Ear Nose and Throat Affections (Medecine generale et oto rhino laryngologie) Got —p 254

10 **Bacillary Glandular Affections and Inherited Syphilis** —Vergely relates that among the soldiers sent to recuperate at the hospital in his charge on the seashore, there were about a hundred who came labeled *adenite bacillaire* The glands involved were in order of frequency after the neck, in the groin, axilla, peritoneum and mediastinum Some had been suppurating for months He examined teeth, eyes and ears for stigmata of inherited syphilis, and asked if there was tuberculosis in the family, whether other children had died young, and whether the patient had ever had syphilis When anything could be found to suspect syphilis he instituted very vigorous specific treatment for it The mercury was pushed almost to the limit, for a month or two, and the long rebellious glandular lesions subsided promptly He comments that the domain of syphilis is being enlarged more and more every day, and this is fortunate, as syphilis is curable Even when tuberculosis or other affections are associated with it getting the syphilis out of the way is important progress toward the cure of the whole

11 **General Medicine and Otorhinolaryngology** —Got's long communication is in response to an official request of the military authorities for information on the ear, nose and throat affections that can be treated by the nonspecialist and those that must be sent to specialist headquarters, and the time when this should be delayed no longer The address was presented at a conference of army medical men, nonspecialists

Lyon Medical, Lyons

November 1916 CXXV No 11 pp 465 512

12 The Chemical Industry in France and in Germany —P Garnal —p 465 Continued
13 *Address to Returning Medical Prisoners of War E. Weill —p 502

13 **Address at the Arrival of Repatriated Medical Prisoners of War** —Weill was commissioned to deliver the address of welcome, Oct 6, 1916, to a band of French physicians just released from captivity in Germany, Lyons being their first stop after entering France by way of Switzerland They had been shut off for months or years from all news of medical matters in France, and Weill presented the medical history for this period Lauding preventive vaccination, he related that not a single case of smallpox has been known in the French armies, and since vaccines against both typhoid and paratyphoid have been used, these diseases have been practically conquered It has been found that curative serums and surgery give better results the earlier they are applied, so the laboratories for diagnosis, the operating rooms, etc, in short the whole medical equipment and personnel have crept closer and closer to the firing line until the wounded now get at once, as if by magic, the benefits of the most recent advances in science The mortality from skull wounds has thus been reduced to 25 per cent , of abdominal wounds to 45 per cent from 95 per cent

Paris Médical

November 18 1916 VI, No 47, pp 437 452

14 *Examination of Abdomen and Tongue in the Typhoid Group L MacAuliffe —p 437
15 *Suspension in Treatment of Fractures Cattier —p 439
16 *Extraperitoneal War Wounds of the Colons M Stassen and J Voncken —p 444
17 Telephone Device for Locating Metal Foreign Bodies in the Tissues (Le reperage immediat des projectiles de guerre) G Houzel —p 448

14 **Examination of the Abdomen and Tongue in Typhoid Group** —MacAuliffe describes in detail the findings on palpation and percussion of the abdomen throughout the course of typhoid and paratyphoid and also the aspect of the tongue, as he has recorded them during the epidemics of these diseases since the war began He says that his data supplement the description in the textbooks The tension of the abdominal walls is most pronounced in the region of the cecum from the very first, and persists longest here When perforation or hemorrhage is impending the abdominal wall stiffens Recovery cannot be counted on till the caliber of all the parts of the intestines accessible to palpation is regular once more

15 **Suspension in Treatment of Fractures** —Cattier gives an illustrated description of various devices for this purpose as he saw the method applied "avec succes et magistralement" in the American hospitals

16 **Extraperitoneal Wounds of the Colons** —Stassen and Voncken remark that the symptoms from a mere wound of the abdominal wall may be as stormy at first as from injury of viscera A grazing wound may cause contusion of the intestinal wall with an eschar, and as this drops off the mischief may be as great as from a primary injury Extraperitoneal injury of the large intestine may entail gaseous crepitation in and around the injured area, with rapid development of a fecal phlegmon If the projectile is loose in the lumen of the intestine, it may move along and give misleading shadows at intervals of only a few minutes while, left alone, the projectile may be passed in the stools within a few days They reiterate that extraperitoneal wounds of the abdomen should not be included in the statistics of other abdominal wounds, as they are in a class apart Their only gravity is from a subperitoneal phlegmon, and an early mechanical cleaning out of the region wards this off, but the symptoms may be deceptively like those of more serious injuries The disappearance of the area of dulness over the liver, regarded by many as an infallible sign of perforation of the intestine and escape of gas into the peritoneum, has lost its diagnostic value as it may occur with these extraperitoneal wounds of the colon It seems to be connected with irritation of the nerves of the peritoneum The same might be said of all the classic "abdominal signs" Only the intensity of the symptoms, the relations between them and the clinical aspect as a whole, in connection with supervision every minute of the beat and force of the pulse, enable us to distinguish between the harmless cases and those requiring a laparotomy

Presse Médicale, Paris

November 23 1916 XXIV No 65 pp 529 536

18 *Remedy for Alimentary Anaphylaxis in Man of 29 (Etude physio pathologique et therapeutique d un cas d'urticaire geante Anaphylaxie et anti anaphylaxie alimentaires) P Pagniez and P V Radot —p 529

19 Arthrotomy of the Knee through the Patella (L arthrotomie de genou par la voie transrotulienne verticale ou oblique) Bougot and de la Rue —p 532

18 **Cure of Alimentary Urticaria**—The robust man of 29 displayed a slight tendency to corpulence but had been healthy till March, 1915, when he developed suddenly a syndrome resembling Quincke s edema, the attacks of edema coming on suddenly, lasting several hours and then completely subsiding The edema was at times so extreme that the eyes were entirely closed Chronic, intense urticaria developed at the same time and persisted in variable forms, not a day without some manifestations Twice the edema affected the pharynx, and the urticaria was accompanied by pruritus The disturbances were traced to the food, to albumin from any source, animal or vegetable, but most pronounced after the former The case was studied extensively *from several points of view, and the findings are tabulated* The various methods of treating urticaria, calcium chlorid, epinephrin, autohemotherapy, etc, were given thorough trials without benefit Finally an attempt was made to combat the anaphylaxis responsible for the condition by inducing an anti-anaphylaxis according to Besredka's principle of warding off anaphylaxis in serotherapy by giving one or more small doses of the serum an hour before the main injection The patient was given an hour before the meal a small amount of the albumin of which he was to make his meal The results surpassed all expectations, the man being thus relieved at one stroke of the disturbances culminating in the urticaria, pruritus, etc The details are tabulated in full of this method of fighting fire with fire For example, if the meal is to consist of bouillon boiled beef macaroni, bread, wine and sweets, the man eats an hour beforehand 5 gm of boiled beef, 5 gm potato, and 2 gm bread Not a trace of skin trouble follows Practically the same meal taken an hour after a preliminary ingestion of 6 gm of potato alone, is followed by severe manifestations of urticaria

Further study of the case showed that it was possible to ward off the anaphylaxis with preliminary ingestion of derivatives of albuminoid substances such as ordinary peptone This answered the purpose of the desired anti-anaphylaxis, which rendered the task much more convenient for the patient It was found that under this preliminary ingestion of a sample of the food to be eaten an hour later, or taking peptone instead the blood no longer showed the typical anaphylaxis changes but behaved like normal blood, developing the leukocytosis of digestion as under physiologic conditions, instead of the reverse drop in the leukocytes during the anaphylactic crisis The latter occurs in two phases, first, the drop in arterial pressure, the inversion of the leukocyte formula, the change in coagulability, and the pruritus, secondly the skin changes which come on and persist for many hours, testifying to the intensity of the shock to the organism In conclusion it is suggested that possibly this case may have a lesson for the treatment of hay-fever and asthma by preventive anti-anaphylaxis The patient in the case reported still has his urticaria, etc, when he omits to take the preliminary dose of exactly 0 5 gm peptone or small amount of the food to form the meal, and the interval has to be exactly one hour At the same time it is evident now that the urticaria is growing less severe than it used to be

Correspondenz-Blatt fur Schweizer Aerzte, Basel

November 11 1916 XLVI No 46 pp 1537 1568

20 *Improvised Orthopedic Devices H Hossly —p 1537

November 18 No 47 pp 1569 1600

21 *Myelitis Developing under Salvarsan (Ueber Salvarsan Myelitis) C Socin —p 1569

22 Present Status of Knowledge of Roentgen Rays and Radio Active Substances (Ueber Strahlentherapie) E Anderes —p 1580

23 Rupture of Tympanic Membrane from Closing Nose and Mouth to Repress *Vomiting* Impulse (*Seltener Fall von indirekter* Trommelfellruptur) P Sokolow —p 1591

November 25 No 48 pp 1601 1632

24 Importance of Bácteriologic Diagnosis of Diphtheria (Ueber die Leistungsfahigkeit und den Wert der bakteriologischen Diphtherieuntersuchungen) R Klinger and E Schoch —p 1601

25 Present Status of Pseudoparalytic Myasthenia Gravis with Report of Case C Krahenbuhl —p 1611

26 Extrapleural Pneumothorax with Artificial Pneumothorax Gwerder —p 1618

20 **Orthopedic Devices**—Hossly is chief of a military sanatorium caring for disabled interned prisoners of war, and he describes with twenty-six illustrations a number of apparatus that have been devised to meet the various conditions encountered and overcome the disability Diagrams are given to show the mechanical principles of a number

21 **Myelitis Under Salvarsan**—Socin's case resembles in some respects that reported by Chiari in 1913 in which a woman of 27 with secondary syphilis developed severe symptoms of cerebral irritation after three doses of neosalvarsan After four days the brain symptoms subsided but paralysis of both legs and of the bladder then developed, and the woman died in six months from general debility in consequence of suppurative bladder and kidney disease and extensive *decubitus Nothing pathologic was found in the* brain or medulla, but the spinal cord showed extensive destructive processes Socin's patient was a woman of 38 with a history of abortions and miscarriages, appendicitis at 18 articular rheumatism at 23 and pneumonia at 30 with empyema treated with resection of ribs Her husband had died of "softening of the brain" During the last six months she has been restless and agitated, with frequent headaches and some efflorescences on shoulder and knee, undoubtedly of syphilitic origin although the Wassermann test twice applied elicited no response An intravenous injection of 0 5 gm salvarsan was given, repeated five days later The first was borne well, but after the second the temperature rose and in two days there were symptoms of encephalitis These gradually subsided and symptoms developed indicating a severe and extensive affection of the spinal cord, with decubitus and a tendency to clonic and tonic spasms She died in fourteen months from debility from the profusely suppurating decubitus, etc, plus pneumonia The Wassermann test was negative throughout Socin states that there was nothing to suggest that the trouble was an acute infectious myelitis of unknown cause while the encephalitis symptoms at first sustain the assumption that the drug was responsible for the whole syndrome The stormy stage lasted six weeks and then some of the symptoms subsided, but spastic paraplegia of both legs was left and persisted till death, with sensory disturbances, all indicating myelitis of the cord in the lower cervical region affecting predominantly the lateral columns The necropsy findings are described in detail They confirmed in every respect the assumption of toxic myelitis The freedom from phenomena of degeneration in the sensory roots testifies against the trouble being due exclusively to the arsenic element Socin adds that *658 per cent of all the* fatal encephalitis cases occurred with doses of 0 5 gm and over

Deutsche medizinische Wochenschrift, Berlin

October 26 1916 XLII No 43 pp 1309 1340

27 *Statistics in regard to Prevalence of Diabetes (Diabetes und Krieg) A Gottstein and F Umber —p 1309

28 *Nerve Transplantation (Zwei neue Methoden der Ueberbruckung grosserer Nervenlucken) A Bethe —p 1311 Concluded

29 *Dengue in Argentina R Kraus —p 1314

30 *Diagnosis of Duodenal Ulcer J Nowaczynski —p 1315

31 Neuroses and Psychoses of Toxidigestive Origin E Grandjean Hirter —p 1316

32 Frequency of Albuminuria with Artificial Pneumothorax J Gwerder and J H Benzler —p 1318

33 *Cystic Kidney (Zur Diagnose der Zystenniere) W Karo —p 1320

34 Weight Gage for Testing Strength of Muscles (Ein neuer Kraftmesser) Loewenthal —p 1322

35 The Peptone Test in Milk (Die Peptonprobe in der Milch) S Serkowski —p 1323

36 Welfare Work for the Blinded in War (Kriegsblinden Fursorge) W Teilchenfeld and Bauer —p 1324

27 **Diabetes and the War**—Gottstein and Umber relate that all writers on diabetes have deplored the lack of reliable data as to the prevalence of diabetes The mortality records

afford little information as comparatively few die from diabetes and the existence of the diabetes is not mentioned when they succumb to an intercurrent disease The war has unexpectedly bridged this gap in our knowledge of diabetes, as, in the state regulation of the food supply, all requiring a special diet were compelled to bring a medical certificate to that effect They could thus obtain the extra fat they needed and all the diabetics took advantage of this, even the milder cases The opportunity was utilized to obtain specific data on the age, profession, etc, and duration of the diabetes The statistics thus collected in Charlottenburg, a fashionable suburb of Berlin, show that there are 706 diabetics there, of whom about 58 per cent are males In five cases both husband and wife are diabetic, in one case father and adult son This is a proportion of 2 3 1,000 inhabitants while in Berlin proper the proportion is only 1 2 or 1 3 1,000 About 33 per cent of all the cases were at the age of 60 to 70 while only 2 per cent were in the twenties and 6 8 per cent in the thirties These statistics confirm the graver prognosis the younger the age The duration of the diabetes was given as six years in fifty-three diabetics in the fifties, and over nine years for sixty-six in the sixties, including five with diabetes for over twenty years The vicissitudes of the war do not seem to have brought on diabetes in the previously healthy, and the predisposed do not inevitably develop it

28 **Bridging Gaps in Nerve**—Bethe transplants a segment of a corresponding nerve from the cadaver, and commends this method of bridging a gap as it has proved its reliability on dogs in the clinic The great endurance of excised segments of nerves permits thorough bacteriologic tests for their sterility before they are grafted Blood from the cadaver in question can also be tested for the Wassermann reaction When the segment is excised from the fresh cadaver, he cuts the peripheral end slanting, to be sure to recognize it The nerve segment is placed in a small Petri dish inside a larger one and is placed on ice, while other scraps are taken for bacteriologic tests The nineteen segments he has prepared to date, taken from seven cadavers all happened to be sterile He has thus transplanted nerves in four clinical cases All healed in place without any temperature reaction In dogs the implant heals in place in four or five days so that further immobilization is unnecessary Small stitches, only 2 mm from each end, parallel to the course of the fibers, are much better than larger stitches He uses the finest eye needles and No 000 silk Even with this care, some of the fibers may get caught in the stitches For a nerve with a diameter of 2 or 3 mm he takes six or eight stitches, applies a starch dressing and lets the animal run around By the fourth or fifth day the dressing is taken off and the animal uses the leg freely, none of the sutures ever seemed to have loosened He advises to use the corresponding nerve from the cadaver for the graft, but thinks it scarcely practicable to fit the ends of the bundles of fibers exactly like to like

29 **Epidemic of Dengue in Argentina**—Kraus states that nearly the entire population of two towns one in Argentina and one across the border in Uruguay had dengue last spring and it spread throughout that Argentine province but died out in March and April There were no complications and no fatalities, but convalescence was protracted and the patients felt extremely weak and had no appetite No micro-organism could be cultivated from the blood or detected with the microscope The leukocyte count was low in many cases, down to 2 200 leukocytes in some with increased numbers of lymphocytes and large mononuclears but no eosinophilia was evident in the convalescents The disease did not seem to be transmitted by direct contact, but it is probable that the swarms of *Culex fatigans* and *Stegomyia fasciata* exceptionally prevalent that season were responsible for the transmission He adds that dengue has been known for years in Brazil and Argentina, but this seems to be the first description of it there to be published

30 **Diagnosis of Duodenal Ulcer**—Nowaczynski reports three cases in which the clinical picture indicated abnormal conditions in the pylorus calling for operative treatment, but this diagnosis was not sustained by the operation The trouble proved to be adhesions between the stomach and liver or adhesions as far away as the spleen region, suggesting a fresh anatomic lesion and inducing spasm of the bowel These spastic conditions affect the stomach and by reflex action modify the stomach functioning This altered functioning of the stomach may be manifested by pylorospasm, hypertonus, exaggerated peristalsis and hypersecretion with its train of subjective disturbances If then are superadded on these symptoms, the disturbances from altered conditions in the vegetative nervous system, such as are common with duodenal ulcer, the diagnosis of duodenal ulcer is almost inevitable In one of the three cases described occult blood in the stools aided in misleading the diagnosis There did not seem to be any lesion elsewhere in the bowel that might have explained it It is hard to explain the source of the occult blood found constantly in the stomach content in the case in which an old healed ulcer was found in the duodenum, the blood certainly came from the stomach in this case It is a question whether local violent and painful contractions of the stomach can cause laceration of vessels enough to explain the blood findings In the three cases reported there had been stomach trouble respectively for ten weeks or twelve years, five years and one month, with intervals of freedom from symptoms The patients were 33 25 and 23 years old In the last mentioned case the disturbances began suddenly with intense pain in the stomach and bloody vomit The repeated vomiting relieved the pains but they soon returned regularly after each meal By the end of the month the pains had become stronger and continuous but there was a good appetite and no occult blood in the stools A gastric or duodenal ulcer seemed almost certain and as the pains kept up unbearable, the abdomen was opened The stomach was somewhat enlarged and the pylorus contracted, but no signs of an ulcer could be detected in stomach or duodenum In the spleen region stout adhesions were found, relics of perisplenitis A gastro-enterostomy was made with a short loop

33 **Cystic Kidney**—Karo removed the right kidney on the diagnosis of pyonephrosis but found this a mistake as it was evidently a congenital cystic kidney The other kidney was enlarged but seemed to rally to the task thrust on it The patient had immeasurably improved over his previous condition, when an intercurrent pneumonia proved fatal by the end of the month The case is reported as showing that bilateral cystic kidney will permit nephrectomy under certain circumstances

Munchener medizinische Wochenschrift, Munich

October 17 1916 LXIII No 42 pp 1477 1508

37 *Diagnosis of Weil s Disease C Baumler—p 1477

38 *Injection of Alcohol in Treatment of Hemangioma K Stromeyer—p 1480

39 Pulmonary Tuberculosis or Pulmonary Syphilis (Lungentuberkulose oder Lungensyphilis?) Wilmans—p 1481

40 Embedding in Gelatin for Frozen Sections (Gelatineeinbettung fur Gefrierschnitte) S Graff—p 1482

41 Concretions in the Lungs (Fall von Steinhusten) M Helbig—p 1483

42 Seven Years of Infant Welfare Work (Sieben Jahre Sauglingsfursorge in Gunzenhausen) Eidam—p 1484

43 Dysentery and Its Diagnosis (Einiges uber Ruhr und vorlaufige Mitteilung eines einfachen Verfahrens zur Schnellfarbung von Ruhramoben zu diagnostischen Zwecken) W Riegel—p 1493

44 *Five Day Fever (Zur Ursache und Uebertragung des Wolhynischen Fiebers) H Topfer—p 1495

45 Paratyphoid in the Eastern Seat of War (Epidemiologische Bemerkungen uber Vorkommon von Paratyphus A *im Orient* und auf dem Balkan) Muhlens—1496

46 Acute Bacterial Urethritis Following or Accompanying Gonorrhea (*Ueber akute urethritische Prozesse bakterieller* (nichtgonorrhoischer) Natur nach abgelaufenem Tripper oder bei chronischer Gonorrhoe und den Streptobacillus urethrae Pfeiffer in atiologischer Beziehung zu ihnen) Engwer—p 1496

47 Reinfusion of Liter of Own Blood from Abdominal Hemorrhage (Zur Wiederinfusion abdomineller Blutungen) Kreuter—p 1498

48 Ligation of Hypogastric Artery for Hemorrhage from Superior Gluteal Artery (Zur Bekampfung der Nachblutung aus der A glutaea sup durch Unterbindung der A hypogastrica) Florcken—p 1499

49 First Treatment of Wounds of the Ear (Ueber Anzeige und Art der ersten Behandlung von Ohrschussverletzungen) W Klestadt—p 1499

50 Intravenous Injections of 1 per cent Lactic Acid in Treatment of Epidemic Meningitis J Bamberger—p 1501

51 Breathing Exercises, etc, in Treatment of Functional Voice and Speech Disturbances S Marx —p 1502
52 Treatment of Dysenteric Liver Abscess T Grussendorf —p 1503
53 Leech in Throat Three Simultaneous Cases (Blutegel im Kehl kopf) Harting —p 1505
54 No Effect from Cholin Chlorid Injected to Soften Cicatrix Thirty Seven Cases O Burkard —p 1505
55 Frame to Hold Three Litters to Economize Space (Die Lager statten in den Sanitatsunterstanden) Stumpf —p 1505
56 Device to Overcome Effects of Ulnar Paralysis Port —p 1506
57 Moist Dressings for Wounds (Feuchte Wundbehandlung) Hart leib —p 1907
58 *Lice Drop Off and Can Be Carried by the Wind a Short Distance (Zur Biologie der Kleiderlaus) Schaefer —p 1507

37 **Weil's Disease** —Baumler remarks that the army experiences have confirmed the peculiar restriction of this disease to the younger men and the summer months, and its prevalence at certain points in small epidemics Another feature is the frequency of cases in which swimming pools seemed to be a factor in its spread Differentiation is simple and easy now since it has been shown that intraperitoneal injection of the blood in a guinea-pig reproduces the typical disease Krummbein and Frieling have recently announced that the disease can occur in dogs and be transmitted by their bite or by fleas from them The disease is rare among civilians Baumler has encountered only one case in civilian circles in his fifty years of practice This was in 1894, and he reproduces the clinical notes on the case It was extremely severe, the prolonged fever severe nephritis and jaundice in the carpenter, 26 years old, being more pronounced than in the classic type of Weil s disease There were also urticaria, parotitis, cystitis and general hydrops and actual convalescence did not set in until after the ninth week The man then gained over 37 pounds in two months Bäumler publishes the details mainly to emphasize the complete recovery, recent examination having shown the man sound and robust with healthy children

38 **Treatment of Hemangioma** —Stromever squeezes out the contents, compressing the afferent vessels to keep out influx of more blood, and then injects alcohol, forcing it against all parts of the wall of the hemangioma He has thus treated thirty patients with hemangioma, the success was prompt and complete in all He keeps up the compression for a minute or two after the injection The procedure is repeated at intervals of one or two weeks Three or four sittings are usually required for a hemangioma as large as a walnut

44 **Five-Day Fever** —Topfer incriminates the louse in the transmission of this disease called wolhynic fever by His He mentions other features of the disease and of the short thick bacilli he found in lice that had bitten patients—all testifying to the analogy between this disease and typhus, although they are well defined separate diseases Probably the germs causing them are closely allied

58 **Biology of Body Louse** —Schaefer calls attention to the way in which body lice are liable to drop off when the clothing is being taken off They let themselves drop to seek more sheltered spots when they are thus exposed to the light and air He was examining in the open air some war prisoners who complained of being sick As one of the men stripped off some of his clothing Schaefer saw a falling louse caught up by the wind and flung against his coat It dropped to the ground from the smooth surface of the coat, but since then he never stands to leeward of a person suspected of harboring lice, and has never become infested with them, although he has had occasion to vaccinate and examine thousands all more or less louse-infested

Wiener klinische Wochenschrift, Vienna

October 11 1916 XXIX No 41 pp 1289 1320

59 *Hemolysis by Radium Rays (Ueber Hamolyse durch Radium strahlen) W Hausmann —p 1289
60 *Treatment of Bacilli Carriers (Behandlung der Bazillentrager) A Herz —p 1290
61 Skin Affection from Contaminated Petrolatum Used in a Salve M Oppenheim —p 1293
62 War Neuroses (Zur Klinik und Prognose der Kriegsneurosen) E Schneider —p 1295
63 Factitious Ulcerations (Ein charakteristisches, kunstlich erzeug tes Geschwur) Liebl —p 1303
64 Improvised Splint for Fracture of Upper Third of Femur (Zur ersten Versorgung hochsitzender Oberschenkelfrakturen) O Schwarz —p 1304
65 Treatment of Abdominal and Skull Wounds Close to the Firing Line R Fibich —p 1317 Continued

59 **Hemolysis by Radium** —Hausmann relates experiences which show that the radium rays are able to hemolyze rabbit red corpuscles suspended in agar plates This seems to be the work of the beta rays

60 **Treatment of Bacilli Carriers** —Herz states that the central hospital for epidemic diseases in his charge has had a constant average of 700 typhoid or paratyphoid cases, and thus has provided ample opportunity for study of various epidemiologic questions, especially those connected with carriers The stools and urine were examined for bacilli day by day or on alternate days, in order to detect any possible connection between the elimination of the bacilli and clinical manifestations By this means it was ascertained that any intercurrent febrile affection seemed to check the elimination of the germs This suggested that an artificially induced rise in temperature might have the same effect To induce this, the corresponding vaccines were given a trial, but did not prove effectual Then parenteral injection of a protein was tried and this seemed to answer the desired purpose Herz selected milk as the best available protein, as R Schmidt has reported that this induces a therapeutic fever in hemophilia pernicious anemia, leukemia, etc , Muller has thus treated also inflammatory processes, bubo, phimosis and epididymitis while Saxl has been applying it systematically in typhoid Herz injected into the gluteal muscle 10 c c milk, boiled in the water bath About eight or ten hours thereafter the temperature rose, sometimes with a chill, it kept high for two or three hours and then dropped back to the previous figure No by-effects were noted except slight headache in some cases The rise in temperature was moderate, and variable in different patients and at different times in the same patient No such temperature response was obtained as is the rule in blood disease In the bacilli carriers besides the fever, it was noted that the bacilli were driven out into the blood and some were eliminated in the urine The blood picture was also modified, and there is reason to assume that any local inflammatory process was also whipped up These biologic phenomena are accompanied by mobilization of antibodies, and these various factors seem to combine to eradicate the lurking bacilli in the body and put an end to the "carriership" Of course time alone will show whether the parenteral protein treatment gives durable results To date, the stool and urine findings have been constantly negative in four chronic cases given four or five injections In the recent cases one injection sufficed He emphasizes the importance of this from a military point of view, as otherwise these men would have to be kept for weeks or months in the hospital after complete clinical recovery, encumbering the hospitals and depriving the army of their services On the other hand, the reaction to the parenteral protein is comparatively insignificant, the disturbances being less, as a rule than even those from antityphoid vaccination

Zeitschrift fur Tuberkulose, Leipzig

1916 XXVI No 4 pp 241 320 Last indexed Dec 2 1916 p 1704

66 Modification of Course of Pulmonary Tuberculosis by Emotional Stress (Zur Frage der Bedeutung psychischer Momente fur den Verlauf der Lungentuberkulose) K Turban —p 241
67 *Record of Differential Blood Count in Pulmonary Tuberculosis (Zur Beobachtung des Blutbildes bei Lungentuberkulose) K Turban —p 242
68 *Storing of Drugs in Tuberculous Tissues (Ueber die Speiche rung von Medikamenten in tuberkulosem Gewebe) Stern —p 244
69 How Switzerland Meets the Question of Tuberculosis in Soldiers (Die Versorgung der Kriegstuberkulosen im schweizerischen Heer) E Meissen —p 249
70 *Connection between Trauma and Tuberculosis J Orth —p 264
71 Tuberculosis and Alcohol L Kathariner —p 281
72 The Predisposition to Tuberculosis L Kathariner —p 288

67 **Systematic Study of the Blood Picture in Pulmonary Tuberculosis** —Turban has found the accompanying chart extremely useful in recording the blood findings over long periods for comparison In protracted chronic cases, once a month is the routine interval, avoiding the menstrual period

in women and the few days before and after it unless its influence on the blood picture is being studied in particular Daily records of the differential blood count over long periods might afford very valuable information, it requires extreme care and practice in enumerating the nuclei as otherwise comparison between the findings of different observers is unreliable

Name

	Datum			Datum			Datum			Datum		
Erythrozyten												
Leukozyten												
Hämoglobin												
Färbeindex												
	Prozent	absol.	Arneth	Prozent	absol.	Arneth	Prozent	absol.	Arneth	Prozent	absol.	Arneth
Lymphozyten große												
Lymphozyten kleine												
Leukozyten												
1 neutrophile												
einkernige			5			5			5			5
zweikernige			35			35			35			35
dreikernige			41			41			41			41
vierkernige			17			17			17			17
fünfkernige			2			2			2			2
2 eosinophile												
3 basophile												
4 große mononucl.												
5 Übergangszellen												

68 **Accumulation of Medicinal Agent in Tuberculous Tissue** —Stern thinks that the principle of chemotherapy, in the sense of a special affinity of the bacilli or of the diseased tissues for the introduced drug, has not been proved But there is every reason to assume that where the circulation is especially active the drug is brought into the region, then by checking the circulation, the drug can be kept there It is possible to influence artificially the circulation along these lines Among the arguments he presents to sustain this view of the lack of a firm scientific basis for the so-called chemotherapy is the efficacy of potassium iodid in sporotrichosis Nothing else ensures so prompt and so complete a cure as this, but potassium iodid does not act on the parasite, there is no "affinity' between them It disintegrates the cells of the infiltrate, leaving the parasites unmodified This is its action also in syphilitic gummas, it breaks up the pathologic tissue cells but does not destroy the spirochetes No one claims that it kills the spirochetes We are far from the realization of an effectual chemotherapy for tuberculosis, but in the meanwhile we are able to draw and hold the drug in the diseased area by various measures to induce hyperemia in general and also local hyperemia Attempts to increase the action of phototherapy by salve treatment and efforts in the line of accumulating deposits of the drug in the pathologic area by stasis or other hyperemia—thus storing up potassium iodid for instance, in the diseased tissues—deserve the greatest attention and imitation Here is a field, he adds, in which actual experience takes precedence of theorizing

70 **Connection Between Trauma and Tuberculosis** —Orth has had occasion to testify in four additional cases in which the accident insurance companies were questioning the connection between a trauma and following tuberculous disease or aggravation The details of these (ninth to twelfth) cases are given in full In three of the cases he testified to the effect that the trauma had no direct connection with the tuberculosis, but, in the fourth case, that there could be no doubt that the trauma had been responsible for the fatal hemoptysis that had followed

Zentralblatt fur innere Medizin, Leipzig

October 28 1916 XXVII No 43 pp 753 768

73 *Alimentary Dropsy (Ueber Hungerodeme) A. V Knack —p 753

73 **Alimentary Dropsy** —Knack describes what he calls *Hungerödeme* as it has been observed in various devastated regions and prison camps during the war It resembles the edema with kidney disease but comes on with dysenteriform symptoms The extreme edema in certain parts of the body and the motor feebleness are the main features Analysis of the various epidemics demonstrates apparently some connection with the food, not so much quantitative as qualitative The persons that suffer from this hunger edema are not so much the ordinary poorer classes as those reduced to penury by the war or other cause The bad quality of the food, spoiled potatoes, etc, induce a primary severe upset in the digestive organs and this entails the cachexia, edema and other features of the syndrome in question It has never been produced experimentally under starvation alone

Gazzetta degli Ospedali e delle Cliniche, Milan

October 8 1916 XXXVII No 81 pp 1265 1280

74 Disinfection of Wounds with Fermented Milk in Prevention and Treatment of Tetanus (Due casi di tetano guariti Batterio terapia lattica della ferita) S Colombino —p 1267

Policlinico, Rome

November 1916 Surgical Section No 11 pp 321 352

75 *Case of Bilateral Mammary Tuberculosis P Gilberti —p 321
76 **Catheterization of the Ureters* (Contributo allo studio del valore del cateterismo ureterale) E Pirondini —p 331

75 **Bilateral Mammary Tuberculosis** —Gilberti's patient was an unmarried woman of 50 and there was no evidence of tuberculosis elsewhere than in the left breast The lesion had been developing for seven months and was as large as a hen's egg He resected the entire breast and the otherwise healthy woman rapidly recovered She returned a year later with a similar tumor in the right breast It had been noted for two months, and he removed this breast also Scanty tubercle bacilli and the characteristic tissue findings were demonstrated in each of the lesions This isolated bilateral tuberculosis of the breast is very rare, still more so the development in a virgin

76 **Catheterization of the Ureters** —*Pirondini* concludes this long study of the advantages and the drawbacks of catheterization of both ureters, with the statement that nothing else can compare with it in reliability, but that even this may prove misleading The catheters may injure the tissues and falsify the deductions, or the patient's general condition may interfere with instructive findings An exploratory incision, exposing the kidney, may usefully supplement catheterization of the ureters in dubious cases He adds that massage of the kidney as a means to induce unilateral polyuria is futile His wide experience with catheterization of the ureters is reviewed with much detail

Siglo Medico, Madrid

November 18 1916 LXIII No 3284 pp 737 752

77 **Experimental Arthritis in Rabbits* (La artritis experimental en los conejos contribucion a la patogenia de la artritis en el reumatismo febril) H K Faber —p 738
78 *Simultaneous Spastic Spinal Paralysis of Alimentary Origin in Two Brothers (Doble caso de latirismo) E F Sanz —p 741

77 **Experimental Arthritis and Pathogeny of Arthritis in Rheumatic Fever** —This is a translation of Faber's report which was reviewed in The Journal, 1915, lxv, 1850

78 **Spastic Spinal Paralysis of Alimentary Origin** —Two brothers 27 and 19 years old, previously healthy and of a healthy family boarded for three months together at a place where dishes made with the chick-pea formed a large proportion of the food By the end of the third month both brothers noted that it was increasingly hard for them to move their legs and in a few days they could not walk or stand without aid, while there were spasmodic contractions at times The older brother was able to get about with a cane, but the younger was entirely helpless The syndrome is that typical of spastic spinal paraplegia in both, and it has persisted unmodified during the eight months to date, without any other symptoms, all the disturbances being limited to the lower limbs The only probable explanation for the trouble is poisoning from the flour made from the seeds of the chick-pea the vetch of the lathyrus species, which is known to be capable of inducing bromatologic intoxication or lathyrism It is not so rare in Spain, Sanz remarks, as the paucity of the literature on the subject would indicate The two brothers in question were farm hands free from venereal disease and abuse of alcohol He relates that the plant in question is the *Lathyrus cicera* or *clymenum* which is called *guija* or

almorta in Spanish, *Platterbse* in German, *gesse* in French, *cicerchia* in Italian and *chich* or *chick-pea* in English The poisoning is probably not so much from the seeds themselves as from some special modification of them from still unknown causes Rost has published a statement to the effect that poisoning from this source is more common in rainy than in dry seasons No attempts to reproduce lathyrism experimentally in animals have proved successful to date, and no necropsy reports of clinical cases have been published, to Sanz' knowledge

Brazil-Medico, Rio de Janeiro

October 28 1916 XXX No 44 pp 345 352

79 *Gonorrhea in the Male at Rio (Sobre o tratamento da blenorrhagia do homem no Rio de Janeiro) A Pereira —p 346

November 4 No 45 pp 353 360

80 Pigeon Proteus and Its Transmission (Pesquisas sobre o ' Hemo proteus columbae) H de B Aragão —p 353

81 Chloroform for General Anesthesia and Its Dangers (Annotaçoes praticas sobre a chloroformisação e seus perigos) O Clark —p 354 Commenced in No 43 p 337

79 **Treatment of Gonorrhea in Males**—Pereira has been impressed with the frequency of pyelitis in gonorrhea at Rio It seems to be a part of the normal evolution of gonorrhea in the male there He says that it can occur only by the infection being carried to the kidney pelvis by the blood or lymph, and this confirms the assumption that gonorrhea is not a local but a general affection This explains why local measures fail to prevent its passing into a chronic phase He has been impressed also with the way in which the gonorrhea seemed to be permanently cured when the man had contracted syphilis likewise and was being given treatment for the latter Under salvarsan alone it showed no improvement, but under a specific course of mercury the gonorrhea seemed to be aborted The conclusion is inevitable that a general course of mercurial treatment is indicated in gonorrhea After extensive experiments he decided that mercury biniodid seems the best adapted for the purpose The dosage need not be so large as for syphilis He has thus eradicated the gonorrhea in from twenty to sixty days with ten to thirty-six injections of 5 mg or half this, of mercury biniodid (*bi-iodureto de mercurio*), repeated daily or on alternate days, without any local measures By way of the stomach, the action is slow and inconstant, and intramuscular injections are less effectual than intravenous In conclusion, Pereira reiterates that chronic urethritis is almost incurable at Rio by the other treatments advocated to date, but the prospects are bright for the permanent cure without local measures, under a systematic course of mercurial intravenous injections

Semana Medica, Buenos Aires

September 21 1916 XXIII No 38 pp 277 304

82 Venereal Granuloma M Beatti —p 281

83 Genesis and Treatment of Dementia Praecox C A Bambaren and H F Delgado —p 292

84 Pharmacy a Profession (El farmaceutico en ejercicio Su caracter civil ante los poderes judiciales) J Oro —p 297

September 28 No 39 pp 305 330

85 *The Hand Sign of Syphilis (El signo de la mano Contribucion al diagnostico de la sifilis) J N Posadas —p 305

86 *Biologic Diagnosis of Pregnancy F A Deluca —p 307

87 *Occlusion of the Urethra in Treatment of Gonorrhea H Dasso —p 309

88 Climatotherapy of Tuberculosis in Argentina J M Escalier and P D Galli —p 317

85 **The Hand Sign in Syphilis**—Posadas for the last three years has been noticing very often in his syphilitic patients, with or without treatment, a pinkish spot in the hypothenar region or palm There is evidently a special dilatation of the capillaries in the skin of this region on both hands It forms a triangle with the base line running from the middle of the inner half of the first fold on flexing the root of the hand to the middle of the ulnar edge of the hand The inner side of the triangle runs from the middle of the ulnar edge of the hand to the digitopalmar fold corresponding to the little finger The triangle thus occupies the hypothenar region but there may be merely a round spot instead of a triangle The skin may look pinkish or resemble a scarlatinal eruption or even a vascular nevus, but the redness never extended beyond the outline of the triangle described above He found this hand sign in 321 of 493 syphilitics examined, that is, in over 65 per cent. but never earlier than the third year after infection Omitting the patients with infection of more recent date, he found this sign pronounced in nearly 81 per cent of 397 patients Specific treatment renders it more intense for the time being and then it returns to its former aspect

86 **Biologic Diagnosis of Pregnancy**—In this preliminary communication Deluca calls attention to what he calls the urine-hemolytic reaction as a sign of pregnancy Tests with sheep red corpuscles, rabbit hemolytic amboceptor and guinea-pig complement showed that addition of urine from a pregnant woman hastened hemolysis by five or ten minutes Urine from men and from nonpregnant women had the opposite effect, retarding hemolysis The pregnant urine lakes the red corpuscles even without the hemolytic amboceptor, but it took several hours for this The presence of complement is indispensable The findings were constant in the thirty pregnant women examined, in the second to the ninth month of the pregnancy In one woman the hemolytic reaction was pronounced although six weeks had passed since an abortion at two months

87 **Occlusion of the Urethra in Treatment of Gonorrhea**—Dasso is convinced that keeping the tissues laved with the medicinal substance is an important aid in treatment, and hence he applies a rubber covered clamp to close up the urethra in treating gonorrhea It can be applied and removed as often as necessary the aim being to maintain the local medication day and night

Hospitalstidende, Copenhagen

November 15 1916 LIX No 46 pp 1109 1132

89 *New Bladder Made from Rectum in Treatment of Exstrophy (En ny Metode til Helbredelse af Ektopia vesicae) T Rovsing —p 1109

89 **Treatment of Exstrophy of the Bladder**—Rovsing gives an illustrated description of two methods for remedying this condition The second is only to be applied in case the first proves unsatisfactory The first method is merely to introduce a retention catheter and suture the bladder walls around it With the second method the trigonum is implanted in the rectum which is severed at the sigmoid flexure and drawn forward to make the new bladder In the case described in detail he thus produced a closed and continent bladder, which contracts and can be voided voluntarily and with normal frequency, but the patient is left with a fecal fistula above, where the stump of the sigmoid flexure is brought out Rovsing regards the discomfort from a well made fecal fistula in sound tissues as less annoying than that from exstrophy of the bladder With his first method the peritoneum is not opened The bladder is separated from the urethra and the latter is sutured separately while the retention catheter assumes its functions The bladder wall loosened up on all sides is sutured around the catheter This method has proved satisfactory in a number of cases, the bladder increasing in size to almost normal capacity in time In case the bladder is too irritable for this, a urinal is worn This method is far from ideal, but in the most harmless manner it does away with incontinence, seeping of urine and all its evils When the bladder does not permit this technic the only choice is between transplanting the ureters into the skin or into the bowel Each has so many drawbacks that he prefers what he calls his second method, cutting away the bladder walls except around the trigonum and bringing the rectum over to make a new bladder This method was successfully applied to a boy of 3 after the first method had been tried and failed, owing to conditions left by bilateral herniotomy

Ugeskrift for Læger, Copenhagen

November 16 1916 LXXVIII No 46 pp 2009 2050

90 Sprue (Orientalsk Tropediarre) A Trolle —p 2009

91 Protheses after Amputation of Both Thighs (Om Fremstilling af kunstige Lemmer til Patienter med dobbelsidig Laar Amputation) E Nyrop —p 2018

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THE PATHOLOGY AND PATHOGENESIS OF ECZEMA AND DERMATITIS

THE IDENTITY OF THE TWO DISEASES *

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NEW YORK

With a tenacity for tradition positively British, and an ancestry worship almost Chinese, dermatologists have clung to the views of their revered dead and to obsolete designations, less with wisdom than with a certain commendable if sentimental loyalty The term eczema is derived from the Greek, meaning to boil up, to bubble Actually, the picture of bubbling is suggested as much and as little by eczema as by herpes, pemphigus, or any other vesicular or bullous disease Thus, even as a simile the designation is defective This in itself would be a matter of minor import, did not the term lead us astray with reference to a closely related or indeed actually identical disease, simple dermatitis It is the object of the present paper to illustrate this identity, and to suggest the abandonment of the word eczema, or at least to restrict its use to a precise group of cutaneous manifestations In a measure the disadvantages of a purely figurative appellation will be counteracted as its limitations are realized and its limits defined If the term eczema survives, it will do so in the sense in which Norman Walker regards it, as a dermatitis of the cause or nature of which the observer is ignorant It will then indicate a diminishing group from which, little by little, as our knowledge grows, the component elements will be transferred to the ever increasing body of dermatitides of known origin

It would be more rational to eliminate the term entirely, and to speak of dermatitis of known etiology on the one hand, and of unknown etiology on the other, the latter corresponding to what has hitherto been called eczema It might of course be permissible to speak of eczema of known and unknown origin, with the understanding that eczema is a dermatitis The objection to this resides in the fact that there is no sound reason for the existence of an inexact word when an exact one may be substituted The poet's famous query as to the value of a name may in general be a thrust well aimed, but in science it is not, and concerning the subject at hand the misnomer is vicious, because it implies invalid and indefensible distinctions

A description of the clinical features of eczema, since these are well known, may be dispensed with, save in so far as from time to time such adversions may be required in order to maintain the thread of discussion By eczema shall be understood what is commonly included under this caption in any representative textbook on dermatology By simple dermatitis shall be meant those forms of cutaneous catarrh represented by various types of dermatitis venenata, occuptional dermatitis and the like Both groups are characterized by itching or burning and by more or less extensive erythematous eruptions, associated with papules, vesicles, pustules, weeping, crusting, scaling and lichenification The combination of these lesions, their extent, the course of the disease, all depend in part on the nature of its pathogenic agent or agents, and in part on the degree and duration of their activity

It is certain that objectively eczema and simple dermatitis are indistinguishable The sites affected, the polymorphous character, the nature of the primary and consecutive lesions, the manner of involution with crusting and scaling, or scaling alone, the subjective symptoms, all are alike in both Wherefore it appears unreasonable to separate them clinically An apparent point of departure is reached anamnestically, however, in that a known cause is ascertainable in dermatitis, but not necessarily in eczema Closer scrutiny, nevertheless, reveals that in the former, although the cause is recognizable, it is pathogenic only in selected individuals so that it at once becomes obvious that the operation of the external agent alone is incapable of provoking the morbid process Furthermore, a discriminating analysis of cases of eczema so frequently discloses the presence of a probable local excitant, that in those cases in which one seems lacking, the want must be ascribed less to its actual absence than to limitations of the patient's or physician's power of observation which prevent its discovery

Microscopically, the two conditions are alike, as will appear below Therapy throws a certain, though perhaps less conclusive, light on the identity of the two processes The milder cases of both respond to similar local therapy The severer cases require the same local as well as general measures for a cure to be effected In thus broadly surveying the field, then, two conditions are under inspection which are clinically and histologically identical, the pathogenesis of which follows in the same channels, and the treatment of which is successful only when conducted along the same lines It is absurd to continue to separate two conditions which in every respect correspond to each other, and to the support of their absolute identification the ensuing will be dedicated

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HISTOPATHOLOGY

Unna[1] divides eczema into two phases, a vesicular and chronic or true form The vesicles are single chambered, variable in size, contain three parts of serum and fibrin to one of pus cells, and lie in the malpighian layer Pressure exerted by the vesicles causes flattening of the surrounding rete cells As the epidermis grows upward the vesicles rise, finally reaching the corneous layer, which consists of nucleated cells The rete pegs are enlarged in all diameters but their general shape is not materially altered In the papillae and pars reticularis a dilatation of the vessels takes place, the endothelium of which is swollen, while a perivascular infiltration of lymphoid cells is present

Chronic eczema exhibits three distinct epidermal features, parakeratosis, acanthosis and spongiosis The first is an expression of incomplete keratinization, which is evidenced by persistence of the nuclei in the stratum corneum, the second is due partly to proliferation of the cells in the rete and pegs, and to interstitial edema, while the last, spongiosis, is entirely due to interstitial edema Spongiosis imparts a curious aspect to the rete The intercellular spaces are broadened by accumulated fluid, forming a tracery of canals which simulates the arrangement seen in a transected sponge This phenomenon is at the bottom of chronic vesiculation, as will presently appear In turn, the vesiculation and spongiosis itself cause crust or scale formation Ivan Bloch[2] emphasizes a productive inflammation in the cutis, persistent vascular dilatation with engorgement and surrounding lymphoid cell deposits Pautrier[3] divides the contents of vesicles into an uppermost layer consisting of serum, a second of serum and leukocytes, and a third of leukocytes These three again constitute the roof of the vesicle, leaving a space below twice as broad, filled with pus and degenerated epithelial cells For the rest, Pautrier, as well as other authors, notably Darier,[4] Ehrmann and Fick,[5] and Walker[6] agree with Unna

The varieties of eczema, such as the erythematous, papular, vesicular, weeping, crusted and scaling, will be described shortly Verrucous eczema depends on excessive acanthosis, lichenified and elephantiasic depend on the degree of productive inflammation and lymphatic engorgement, respectively, present in the cutis These types are incidental rather than basic and their detailed elaboration would add nothing to the present paper

In my own studies I have been able to confirm the foregoing The formation of the vesicle of acute eczema is different from that of the chronic type In the former an intracellular or parenchymatous edema in the rete is the starting point Accumulation of fluid in the cytoplasm causes the cells to enlarge and become round, while the nucleus is pushed toward the periphery of what is now a sac of fluid Microscopically, such a cell resembles a cavity This process is known as *alteration cavitaire,* the designation having been suggested by Leloir In chronic eczema the vesicle depends on interstitial edema The saturation of the intercellular spaces stretches the epithelial threads to the breaking point, freeing the cells which then become spherical Thus, whether the edema begins within or without the cells, the latter finally become rounded out When numerous contiguous cells are so altered they lie in a space, the vesicle proper, and are surrounded by serum, fibrin and migrated leukocytes, chiefly of the polymorphonuclear variety The rounded epithelial cells resemble toy balloons, an observation which caused Unna to call the process ballooning degeneration The wall of the vesicle is formed of contiguous epidermal elements flattened by the pressure of the vesicle contents Although the vesicles are always single chambered, they are often numerous, and when separated by thin walls may simulate multilocularity Usually in acute eczema and invariably in chronic, spongiosis, acanthosis and parakeratosis, as affirmed by Unna, are present

Erythema is due, in both the acute and chronic stages, to dilated vessels, papules, to edema of the papillae, infiltration therein, hyperplasia of collagen, or all three, and scaling to parakeratosis In the acute form weeping is almost invariably due to the rupture of vesicles, while in the chronic it may be due to this, but is more frequently occasioned by the interstitial edema The frail and imperfectly keratinized corneous stratum is washed away by the saturation of the epidermis, thus exposing the rete, out of which wells up the excess of serum From whatever source, the fluid dries and forms crusts, additional elements of which are bacteria, leukocytes, exfoliated corneous and degenerated rete cells and erythrocytes Should the vesicles have become purulent, the crusts assume the characteristics of dried pus

SIMPLE DERMATITIS

Very little attention has been devoted in the literature to the microscopic study of simple dermatitis Kulisch[7] produced vesicles experimentally with croton oil and cantharides, duplicating Hebra's classic investigations, which had caused the latter to conclude that eczema was always of external origin It would be redundant to paraphrase Kulisch's account of his results, as they absolutely correspond to a description of eczema More recently Weidenfeld,[8] working along similar lines, corroborated the above findings

In each of the three instances just cited the investigators were working on the problem of eczema, and had no thought of dermatitis, but it is obvious that they made no distinction between the two processes, for they produced what they called eczema by the use of external agents The latter were poorly selected, since they are vesicants and produce blisters on practically all skins Microscopically, however, the lesions were those of acute eczema

It has been my good fortune to examine specimens of skin excised from patients suffering with various forms of acute and chronic dermatitis due to chemical agents vocationally employed They were identical in their minute anatomy to eczema in its various forms

RESUME

Microscopically, then, eczema and simple dermatitis are one and the same process In terms of general pathology they represent, as the case may be, acute, subacute, or chronic catarrhal inflammation As Johnston[9] says "Eczema differs not at all from the other fibrinous lymphocytic inflammations except in the histologic peculiarities occasioned by its site" A belief is nurtured in some quarters that dermatitis begins with epidermal changes, those in the cutis being secondary, while the reverse obtains in eczema Weidenfeld's studies, however, adequately disprove this Furthermore, such reasoning is fanciful, for all inflammatory processes, by their very nature, depend on vascular changes, and it is impossible to distinguish microscopically, when alterations have occurred both in the epiderm and corium, which preceded and which followed

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[1] Unna Histopathologie der Hautkrankheiten Berlin, 1894 p 194

[2] Bloch I Unna s Lehren Berlin 1908 p 434

[3] Brocq Pautrier and Ayrignac Les characteristiques symptomatiques histologiques de l eczema papulo vésiculeux Ann de dermat et de syph 1911 p 525

[4] Darier Eczematides Precis de dermat Paris 1909, p 72

[5] Ehrmann and Fick Komp der speziellen Histopathologie der Hautkrankh Vienna 1906 p 17

[6] Walker Introduction to Dermatology New York 1899 p 89

[7] Kulisch Sind die durch Canthariden und Crotonol hervorgerufene Entzundungen der Haut Eczeme? Monatsh f prakt Dermat 1893 **17**, 1

[8] Weidenfeld Beitrag zur Pathogenese des Eczems Arch f Dermat u Syph, **111**, 891

PATHOGENESIS OF ECZEMA

There are three possible ways by which the pathogenesis of eczema may be explained through internal causes, external causes, and the activity of outside agents in predisposed individuals

Internal Causes In the earliest French literature eczema was considered a dartre After the concept had been discarded by Willan[10] as meaningless, Hardy[11] reapplied it clothed out as the "dartrous diathesis" A dartre was a vice or poison capable of protean manifestations, one of which was eczema In modern France this idea has been perpetuated as arthritism, in England as the gouty diathesis Besnier[12] elaborately included among the internal causes of the disease five groups

1 Predisposing heredity, syphilitic and alcoholic ancestors, ancestors who suffered with other skin diseases, constitutional weakness, diabetes, lithiasis, bronchitis, etc
2 Physiologic dentition, pregnancy, lactation
3 Nervous
4 Functional digestive, assimilatory and excretory disturbances
5 Local predisposing ichthyosis, keratosis pilaris, seborrhea, skin folds and body orifices

One and all of these excitants has had its champions Three of the list, however, deserve emphasis, the nervous, digestive and metabolic causes A varied fabric of fantasy has been woven about the role played by the nerves in producing eczema, and yet undoubtedly a connection exists This may not be direct and probably is not, but there can be no doubt that indirectly, through its effect on body function, what is popularly known as nervousness may disturb metabolism sufficiently to provoke cutaneous diseases It will save space to quote in toto a passage from another paper[13] on this theme

> Tilbury Fox finds the disease due to "perverted innervation" Anderson mentions mental excitement, grief, overstudy, and sedentary habits among the causes, Malcolm Morris, mental depression and nervous shock, a point of view acceptable to Johnston, who denies, however, that there are any demonstrable nerve lesions Bulkley enumerates neurasthenia, nervous and mental shock, reflex internal neuroses, such as those due to dentition, and reflex external neuroses, such as scratching and irritation, as well as structural and functional neuroses

That digestive disturbances are prominent in producing eczema, as the entire literature of the infantile form of the disease illustrates, is beyond question Such causation, numerous authors agree, is not restricted to babyhood, however, and constipation is widely regarded as intimately associated with eczema, if not actually provocative thereof, the two conditions possibly being expressions of the same underlying cause

More important than the preceding is the influence of metabolism Johnston[9] asserts that "all eczemas must have a basis of failure of metabolism for their development" He alludes especially to ductless gland disturbances, and those of nitrogen chemistry Neisser[14] includes among probable causes chemical substances elaborated in the cachexias, diabetes, and gout, while Tilbury Fox[15] adds nephritis to this list Towle and Talbot[16] find disturbances of sugar and fat metabolism in infantile eczema More recently White,[17] by a series of percutaneous tests, has demonstrated that many adults with eczema are allergic to egg albumin, fat free, milk and oatmeal water, and that in a certain number of cases lactose and salt-free butter may be at fault A considerable proportion of these cases suggest that sensitization to given proteins is responsible for some forms of the disease

External Causes There are three groups of alleged external causes, local predisponants, irritants and micro-organisms Besnier[12] includes among local predisposing faults, as already mentioned, ichthyosis, keratosis pilaris, hyperhidrosis, seborrhea, and skin folds Brocq[18] regards dyshidrosis as a most frequent offender, while Jadassohn[19] actually considers it as a form of eczema itself Great unanimity is displayed among authorities as to the pathogenic function of this group Little need be said concerning local irritants, since their action is obvious They are mechanical, physiologic and chemical, as friction, pressure of implements, actinic rays, drugs, cosmetics, dyes, chemicals, such as cleansing powders, disinfectants, and substances employed in art, science and manufacture Artificial dermatitis, occupational and professional eczemas are examples of the conditions they provoke

As to micro-organisms, Unna[20] attempted to prove the existence of a special eczematogenic bacterium called the morococcus A perusal of the Transactions of the Fourth International Dermatological Congress will show how vainly he contested and how completely he was vanquished The organism he sponsored was generally regarded as the white skin staphylococcus Possibly the presence of micro-organisms in the lesions intensifies the process, or perhaps their toxins do, but their specific pathogenicity has been disproved

The Combined Internal and External Causes Willan,[10] Neisser[14] and Rayer[21] regard eczema as due to external agents operating in the predisposed Fox[15] and Fordyce[22] apply this principle to eczemas caused by chemicals, and Hall[23] and Jacquet and Jourdanet[24] to those arising occupationally

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[9] Johnston Eczema a Sketch of Its Process and Management New York Med Jour Oct. 20 1906

[10] Willan and Bateman A Practical Synopsis of Cutaneous Diseases, 1815, p 252

[11] Hardy Piffard's Translation of the Dartrous Diathesis 1868

[12] Besnier Pratique Dermat **2**, 1

[13] Heimann A Critical Review of Eczema and Dermatitis etc Jour Cutan Dis, **34**, 259

[14] Neisser Ueber den gegenwartigen Stand der Lichenfrage, International Dermat Congress 1894

[15] Fox, Tilbury Eczema Its Nature and Treatment 1870

[16] Towle H P and Talbot F B Infantile Eczema and Indigestion Am Jour Dis Child October 1912, p 219, Jour Cutan Dis **31**, 54

[17] White Anaphylaxis in Eczema, Jour Cutan Dis **34**, 57

[18] Brocq La question des eczemes, Ann de dermat et de syph, January to March 1900

[19] Jadassohn Fourth Internat Congress 1900 p 71

[20] Unna Parasitic Origin of Eczema Fourth Internat Congress 1900 p 9

[21] Rayer Traite théorique et pratique des maladies de la peau 1835

[22] Fordyce J A The Modern Conception of Eczema The Journal A M A June 13 1903 p 1621

[23] Hall Brit Jour Dermat 1905 **17**, 181 203 247, 287

[24] Jacquet and Jourdanet Etudes des dermites professionelles Ann de dermat et de syph, 1911 p 11

THE PATHOGENESIS OF SIMPLE DERMATITIS

This division is purely artificial, but temporarily may be allowed, partly for the sake of clearness, but more especially because it indicates how purely arbitrary is a separation of eczema from dermatitis Everything already stated in connection with eczema due to external causation and combined external and internal origin applies equally to dermatitis

THE PATHOGENESIS OF ECZEMA AND DERMATITIS AS A WHOLE

It is overwhelming, when first confronted with the task, to find a way in which to bring into accord so many causes capable of producing a relatively consistent clinical picture The difficulty, though, lies not in the number of the causes, but in the fundamental misconception that eczema is a disease It is rather, like coryza, bronchitis or nephritis, for example, an expression of disease In order to comprehend this fact we need only recall the doctrine of cutaneous reactions, of which urticaria is a simple example Innumerable causes provoke hives, but their clinical picture always remains constant After all there are not a great many manners in which it is possible for the skin to respond to disease-producing agents and one of these is the catarrhal inflammation Thus eczema and dermatitis are in effect a generic reaction to a wide variety of excitants, an index, as it were, of morbidity Bazin in 1866, according to Brocq,[18] said that eczema is a "special reaction of the skin to diverse causes" To realize this is to possess the key to the solution of the entire problem

The internal causes of eczema, disturbances of digestion, of the nerves, of metabolism, of the endocrinous glands, anaphylaxis, have been mentioned Not every one, however, in whom such conditions exist gets eczema Thus, an external factor must be sought, a local excitant to precipitate the attack It is, as a matter of fact, at times impossible to find either a general or local reason for the skin changes This is no argument that there is none, but simply an indication of inability to demonstrate it If there were actually no cause for the eruption, if the patient were in perfect health, it would necessarily follow that pathologic changes might exist without disease, a manifest absurdity

Eczema of external origin is due, as has already been outlined, to all sorts of mechanical, physical or chemical agents But if these alone sufficed to produce cutaneous alterations every one on earth would be always afflicted The truth is that they are harmful to very few individuals exposed to their action This establishes beyond doubt the fact of predisposition Such a predisposition may be general or local The first would at once identify eczema of external origin with that of internal, with the added feature of a known exciting cause The second requires somewhat further elaboration, for local predisponants, skin anomalies, as ichthyosis, secretory disturbances, as hyperhidrosis, inflammations, as seborrhea, may act as precipitating causes in connection with general disturbances, or as predisposing causes in connection with external agents In other words, local predisposing conditions are capable of playing a double role

Dermatitis of external origin can also develop only in the predisposed, or it would be universal Since simple dermatitis and eczema of external causation are alike clinically and histologically, since both are cutaneous catarrhs, and since in both the pathogenic mechanism is the same, it must be admitted that the two conditions are identical It has also been shown that eczemas of internal and external causation differ from each other in only one essential respect, namely, the absence in the former of a demonstrable precipitating cause This can scarcely be sufficient to establish eczema as a separate entity, for the quantity is mined and undetermined, and as methods of investigation are improved the former will increase at the unknown solely because it has not yet been found It simply represents the difference between the deter-expense of the latter until the latter reaches the vanishing point Thereupon eczema will automatically cease to exist

This view has already been implied in the literature Willan and Bateman,[10] Biett, Cazenave and Schedel[25] hold that there is no difference between eczema and dermatitis Fordyce[22] says that the two are clinically and microscopically indistinguishable Ormsby[26] is able to differentiate them only by the history, and not by their appearance Pusey in his textbook boldly asserts the absurdity of attempting any such distinction, and because of the splendid force of his expression and his compelling logic, the entire passage in question is worth transcribing from his work

> Hebra first cleared the subject of eczema of some of its vagueness, and also opened the discussion as to its proper definition, by declaring that eczema is dermatitis, such as can be excited in any skin by external irritants And most authors agree, or at least admit incidentally in their descriptions of eczema that its eruption is indistinguishable from dermatitis, for example, Stelwagon says, "Inflammation of the skin of artificial origin is often similar in symptomatology to that of eczema and may, indeed, be considered identical" But many authorities are not willing to rest with this They insist that it differs from an ordinary dermatitis of external origin by certain added factors, usually factors of personal equation in the patient The position of Malcolm Morris may be cited as an example of the point of view of those who hold that eczema is something more than a dermatitis Morris, than whom no one is better able to state a case, gives the following definition of eczema "Eczema is a catarrhal inflammation of the skin originating without visible external irritation and characterized in some stage of its evolution by serous exudation The definition of eczema here given excludes all forms of inflammation of the skin caused by chemical or mechanical irritants The artificial dermatitis set up by such agents is *identical automatically with the eczematous process* and gives rise to *lesions indistinguishable from those of eczema*, but it is not eczema" This seems to me a reductio ad absurdum It amounts to saying that two things which are the same are different because they are produced differently The most that this statement can mean is that there is dermatitis of external origin and dermatitis of other origin which are indistinguishable, and that he would confine the conception of eczema to the dermatitis of other origin Morris goes on "It is evident, therefore, that there is something more in eczema than inflammation of the skin due to a local and transient cause There is an unknown quantity beyond this, a pathological x which may be either some invisible source of irritation or some constitutional peculiarity or both of these factors These identical words could be used in favor of the position that pneumonia and tuberculosis are not essentially due to the pneumococcus and the tubercle bacilli respectively Indeed, in the old days this line of argument was used to prove that tuberculosis was a "constitutional" disease If it were not for this pathological x some factor of lowered resistance, we would all have pneumonia all the time, and who of us would escape tuberculosis? Further, his qualification that the process originates without *visible* external irritation is also certainly an unessential condition It makes

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[25] Biett Cazenave and Schedel Abrége pratique des maladies de la peau, 1838 p 90

[26] Ormsby Diseases of the Skin 1915 p 187

no difference in the essential character of a dermatitis that the irritant happens in some cases to be discoverable and in others not

Leaving out these unessential qualifications, we cannot avoid the position that eczema is dermatitis, and, as far as the lesions in the skin are concerned, this statement represents the fact

Support of this attitude may be found in clinical experience In an analysis of fourteen closely observed cases (Heimann[13]) the following facts stood out An ascertainable local irritant was present in eleven, a presumable one in another case These irritants were hair dyes, scalp lotions, resorcin, or other chemicals Local predisposing causes could be determined in seven, seborrhea having been the most frequent It might be maintained that because of their relation to an external irritant, such as a hair dye, these cases were not eczema, but simple dermatitis, and that therefore the deductions in this paper are not valid To forestall this argument it is necessary only to point out that the process was not limited to the scalp, but involved the face, neck and elbow flexures In another case in which the irritant had been applied to the bust, the entire body was involved A patient whose illness had been precipitated by resorcin was sick for six weeks, long after the resorcin could have been active, and the course of the attack was characterized by recurrences without the reapplication of the original offending substance

In all of the patients some general disturbance was present, such as neurasthenia, intestinal derangement, or evidences of anaphylaxis The commonest abnormal conditions were neurasthenia and constipation, while in two instances analysis of the feces showed a protein putrefaction Most striking, however, was the light thrown on the pathogenic mechanism of these cases by therapy In all fourteen the average duration of the attack was sixteen days The average duration in the patients treated locally alone was twenty-two days, while in those receiving general treatment as well, it was just under nine days, or less than half as long The general measures consisted of colon irrigations, enemas, or the use of cathartics or sedatives, according to special indications

It is clear from this brief clinical exposition that two main pathogenic factors were present These were local irritants which were active beyond the site of their application and beyond their period of immediate contact with the skin, and general causes which rendered the skin susceptible to the former In other words, the irritants merely precipitated a reaction in prepared individuals General treatment served to lessen the susceptibility, so that the clinical experiences here outlined serve as experimental evidence favoring the argument advanced in this study

SUMMARY

Eczema and simple dermatitis resemble each other clinically and microscopically Thus eczema, from the standpoint of pathology, is dermatitis, differing from the latter in the clinical sense only in so far as it arises without a demonstrable local cause For the rest, both are dependent on a predisposition which renders the patient susceptible or responsive to the influence of the determining factor A great number of conditions, both general and local, constitute defects which augment susceptibility, while an equally formidable array of known precipitating agents has been compiled, their number steadily increasing at the cost of a diminishing body of unknown ones The distinction between eczema, since it is dermatitis, and what is frankly regarded as dermatitis, is purely academic and is based solely on human limitations Processes which are alike clinically, histologically, histogenetically and pathogenically are identical, wherefore, all that remains of eczema is the fact that it is dermatitis of unknown origin

This being the case, it is scientifically disadvantageous to continue the use of the term The whole class of conditions in question should be divided into two groups, dermatitis of known and unknown origin, respectively, of which the second would represent the ancient eczemas But as such a change would throw a heavy tax on loyalty to tradition and on dermatologic literature, the continuance of the classic term may be allowed with the restriction that it indicates dermatitis, the immediate cause of which remains obscure Eczema would thus cease to be accounted a disease sui generis, and would be looked on as an index of morbidity, the determination of which would become a duty In other words, since its rational treatment would depend on a knowledge of its cause, it would stimulate the study of the dermatosis from the standpoint of internal medicine This would be of benefit to the patient and would hold dermatology to a scientific path from which it tends only too often to be lured by the fascination of glittering, if somewhat unsound, morphologic superficialities

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ECZEMA OF EXTERNAL ORIGIN AND ITS RELATIONSHIP TO DERMATITIS

BASED ON A STUDY OF 36 996 DERMATOLOGIC CASES OF WHICH 6 453 WERE CLASSED AS ECZEMA *

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In May, 1912, I had the pleasure of reading a paper before the American Dermatological Association with the title of "The External Origin of Eczema, Particularly the Occupational Eczemas, as Based on a Study of 4,142 Cases " This study was based on a review of 24,459 cases of diseases of the skin observed, in nine years, in the dermatologic clinics of the Pennsylvania, University and the Howard hospitals During the last five years I have had the opportunity of observing 12,537 additional cutaneous cases in the skin departments of the Pennsylvania and the University hospitals, of which number 2,311 were tabulated as eczema Therefore, during the last fourteen years there have been studied 36,995 dermatologic cases, of which a total of 6,453 have been classified as eczema (14 75 per cent) In the former series of cases, fully one quarter of those tabulated as eczema were of determinable external causation, while in the present group almost one third could be attributed to external factors

It should be recalled that the cases tabulated in the foregoing lists have been classed as eczema because of their chronicity as to course, lasting over a period

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* Read before the Section on Dermatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

of weeks and months, although most of them were exceedingly acute in their clinical appearance Hundreds of cutaneous cases were diagnosed as dermatitis in the hospitals named, particularly those attributable to plant poisoning or acute irritants, in which the outbreak ran a rapid course toward recovery, cure being effected in a few days

The study of the external etiology of eczema may conveniently be divided into three classes the parasitic origin of the disease, eczema from external irritants, exclusive of occupation, and trade eczemas

Investigations into the parasitology of eczema have been made by many excellent observers There is no definite evidence that organisms in or on the skin are causal of eczema, although cocci, usually of the staphylococcus group, no doubt have a decided influence in determining secondary lesions and complicating factors The parasitology of the disease may be summarized by stating that the majority of dermatologists do not regard eczema as due to a specific organism, or as a parasitic disease, the various forms of which conform to different organisms, but the belief is prevalent that bacteria may play an important part in the evolution of the lesion Numerous references on this phase of the subject may be found in a former publication of mine and in the article recently written by Heimann

Eczema of external origin, exclusive of occupation, may be produced by any irritant in a susceptible person, or by prolonged and frequent exposures to an irritating factor in those less predisposed We are all familiar with the many external factors which cause an outbreak, such as injuries, dyes, drugs, friction, etc Those irritants which should be particularly emphasized are iodoform, hair dyes, dyed fur, and cosmetic preparations Iodoform very often gives rise to a spreading inflammation of the skin, particularly when used as a dressing to a raw surface This spreading redness, resembling erysipelas and at times a scarlatina, may not only be evanescent in course but also partake of the character of an eczema, lasting over a considerable period

Paraphenylendiamin, which is the dye used in many hair preparations, is coming more and more to the fore as the cause of a persistent erythematous and vesicular outbreak on the ears, face and neck, which may last over a period of some weeks This dye is also a prolific source of irritation about the neck and the wrists of those wearing brown fur and black pony coats Numerous instances of eruptions are observed in our private work from the use of vanishing creams, so called, and all types of cosmetics Within the last week an outbreak of some weeks' standing, of a papular type, has been seen in my office apparently due to a preparation labeled as "milk weed cream" Outbreaks have been observed from "breast developers" and also from one of the proprietary iodin ointments Lesions from the latter preparations had been present for some weeks when the patients came under observation

Trade eczemas offer a large dermatologic field, and many pages might be written alone on this phase of our subject In my former publication, twenty-nine different trade groups were tabulated in which various irritants handled were causative of an outbreak The eczematous outbreak was found in the following occupations housewořkers, laborers, woodworkers, photographers, printing trade, painters, millworkers, bleachers and cleaners, cloth handlers, tanners, coopers, physicians, dentists, nurses, attendants and those handling drugs and chemicals, workers in sugar, candy and chocolate, bakers, barbers, bartenders or liquor dealers, handlers of oils and greases, handlers of pastes, grocers, plastering, paper and building trades, tobacco workers, furriers and hatmakers, workers in metals and minerals, handlers of dyed materials, fruit handlers, ice and ice cream makers, soap makers, packers, farmers and florists Recently a generalized outbreak of an erythematosquamous type has been observed in five workers in munition factories These men were all exposed to picric acid, alcohol and ether Their portion of the work consisted of putting the wet guncotton into cans The outbreak in each instance had been present for two weeks or more

Nomenclature is one of the greatest faults of our specialty, dermatology There is no more chaotic subject than exactly what eczema is and the dividing line between this affection and dermatitis The remarks made by Zeisler are pertinent to this subject He said that he felt like presenting the etiology of eczema, in a rather paradoxical vein, something like the following When we had a case of eczema of which we knew the cause, then it was not eczema, and when we had a case of dermatitis and did not know the cause, then it was eczema Or again, when we had a case of eczema which readily responded to treatment, then it was not eczema, but simply a local dermatitis, and when we had a case of dermatitis which proved obstinate to our therapeutic efforts, then we were really confronted with an eczema

Willan and Bateman, Biett, Cazenave and Schedel and Hebra assert without qualification the identity of dermatitis of external origin and eczema Fordyce considers that the two are identical clinically and histologically Pusey states that "our difficulties disappear if we accept eczema to be what it is in all of its clinical characteristics — a superficial, simple dermatitis such as might be excited by external irritants" Hartzell mentions that he did not believe that there was any real distinction between many cases of so-called eczema and many cases of chronic dermatitis Hyde stated that "there is no 'eczema' in the absence of dermatitis, is there any dermatitis without some of the accepted symptoms of 'eczema'? The doom of the word is probably written It will survive where it belongs and with no greater repute than attaches to the outworn and the discredited"

Anderson, Fox, Jacquet and Jourdanet add predisposition as a factor in dermatitis of external origin Heimann has recently stated the conclusion that dermatitis and eczema are identical, having the same clinical and pathologic picture

Bowen and, I believe, the majority of dermatologists consider that artificial dermatitis offers no histologic divergences from acute eczema, notwithstanding the view held by Unna that vesiculation is not uniformly characteristic of eczema in the manner that it is of acute dermatitis

After a thorough study of hundreds of cases and a perusal of the literature bearing on the subject, the investigator is forced to the conclusion that it is practically impossible to distinguish between dermatitis and eczema of external causation If the outbreak is caused by certain irritants, such as plants, we call it dermatitis, if by certain other irritants, eczema If it be of short duration and of known cause, we call it dermatitis, if of long duration an eczema The clinical picture may be the same in each, the histologic appearance identical, and yet we place the one under the heading of a dermatitis and the other is classed as an eczema Is not our attitude inconsistent? Should we not take a firm stand and advance a step forward by classing all cases of known external causation, which have heretofore been classed as eczema, under the heading of dermatitis?[1]

CONCLUSIONS

Almost one third of all cases of eczema are of definite external origin About one sixth of all cases of this affection are caused by the occupation of the individual

Micro-organisms play only a secondary role in the causation of the disease

Practically every occupation and every irritant may produce an eczema

The portions of the skin exposed to the irritant determine the site of the outbreak

The eruption not infrequently extends beyond the irritated areas, at times being observed on distant parts of the cutaneous surface and also generally in certain *instances*

The usual type of eruption noted is the vesicular or the erythematosquamous

The eruptions mentioned as occurring in the cases in this article have lasted for weeks months and years, and showed a marked tendency to relapse

It is rather hard to explain the susceptibility of some persons to certain irritants, while others are not affected, excepting on the theory of a pure idiosyncrasy, an anaphylactic tendency causing sensitization of the skin

As dermatitis and eczema of external origin have the same clinical and microscopic appearances, they should be classed under the heading of dermatitis

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TWO MODERN METHODS TO BE EMPLOYED IN THE TREATMENT OF CHRONIC ECZEMA *

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The etiology of chronic eczema remains still a subject of conjecture Men have held decided views on this question since the disease was first recognized, and to those who seek the details of this historical controversy let me recommend the excellent summary of the subject recently published by Heimann[2] Today there can be no doubt, I think, in the unbiased mind that internal as well as external causes play their respective roles in the production of the disease, and I believe that at the present moment a good many men hold the opinion that the first etiologic step is the sensitization of the skin and that the second is the contact with an external irritant

One might regard this theory as a compromise between the two earlier creeds, that is, the external and internal, but I myself find any other conjecture irreconcilable with the facts All men admit that certain substances, too numerous even to mention, are capable of producing an eczematous eruption on the skin, but this apparent capability is limited, fortunately, to but a comparatively few skins, otherwise many occupations would have to be banished from the face of the earth Granted, therefore, that certain substances are cutaneous excitants, how can we explain the fact that forty-nine men escape all outward inconvenience when the fiftieth man working under exactly the same conditions and handling exactly the same substance in exactly the same manner becomes affected, to such a degree, at times, that further subjection to this substance becomes an utter impossibility? Or, again, how is it possible that a pathologist who has for years dipped his hands into liquor formaldehydi with impunity suddenly becomes incapable even of entering a room where this chemical is stored? Or, once more, how does it come to pass that a botanist who has been poisoned by rhus toxicodendron for many years suddenly finds that he has become immune to the influence of this heretofore noxious oil? Something more than an external irritant is at work in these three not hypothetic individuals just cited Something has happened in the economy of these three men to make them susceptible to a given chemical and again to render one of them no longer a victim to its influence

What this thus far unexplained something is is the elusive x which men are now seeking so diligently, and this something has been the object of my quest for the last two years and more

Following the lead of Schloss of New York, who worked on the urticarias of childhood in 1912, and of Towle and Talbot of Boston, who investigated the subject of infantile eczema in 1913, and of Goodale of Boston, who has studied so thoroughly the question of the pollens in hay-fever in 1913-1914, I have tried to solve this etiologic puzzle by means of cutaneous food inoculations and by the study of the feces

At the end of my first year's investigations I made to the American Dermatological Association a preliminary communication[3] with the following conclusions, based on a study of sixty-four cases of chronic eczema

> From the facts thus recorded and from other investigations not detailed we make the following deductions on the question of food in its relation to chronic eczema at various ages of life
>
> A Eczematous infants usually present in their stools an excess of fat or starch An excess of the former element generally means a moist eczema, of the latter, a dry type
>
> B When eczema is present and neither fat nor starch appears in excessive amounts in the feces the physician should look for susceptibility to egg albumin or to milk or, in default of all these more common causes, to a diminished thyroid secretion
>
> C Susceptibility to egg or to milk can be demonstrated by the new method of food inoculations—a procedure analogous to the von Pirquet test for tuberculosis and the Schick test for diphtheria
>
> D This cutaneous method can be extended to the study of the action of other food elements in eczematous individuals
>
> E Normal people, so far as we have ascertained, do not react to these tests

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[1] All of the references mentioned will be found in the three following papers Knowles F C The External Origin of Eczema Particularly the Occupational Eczemas as Based on a Study of 4 142 Cases Jour Cutan Dis, January 1913 See also the discussion on this article; Dermatitis Caused by Cosmetics and Wearing Apparel, Particularly Those Containing Paraphenylene Diamin Pennsylvania Med Jour to be published Heimann A Critical Review of Eczema and Dermatitis with an Analysis of a Group of Cases Jour Cutan Dis, April, 1916

* Read before the Section on Dermatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[2] Heimann W J Jour Cutan Dis, 1916 34, 259

[3] White, C J Jour Cutan Dis 1916 34, 57

F In chronic eczema the great majority of its victims seem to exhibit anaphylactic reactions to one or more types of food substances

G This phenomenon, as evinced in the few instances investigated, seems to be present in other diseases, which have been associated in the past with food disturbances, notably urticaria and probably acne vulgaris

H Approximately 20 per cent of eczematous individuals do not appear sensitized to any of the common food types These exceptions may denote that all cases of eczema are not due to food sensitization or that special individual articles of food, not tested by us, may be the causative factors Such exceptions have been demonstrated by pediatrists where, for instance, one child's asthma is produced by English walnuts

I In practically 30 per cent of these eczematous patients one or more of the controls proved positive This sign may be considered analogous to the symptom usually observed in urticaria, i e, dermographism

J In the few cases where both stool examination and cutaneous tests were made there was one contradictory finding Fat was excessive in the stool and negative on the skin, while starch was present in the feces and negative cutaneously Further combined examinations must be prosecuted in the future to strengthen this whole present theory of the relationship of food poisoning to chronic eczema

K One cannot apparently positively tell from the type of eczema present what food elements will give positive skin reactions

About the same time Schloss read before the American Pediatric Society a paper founded on the results of his three years' labor in this field, from which I quote

> *It is unusual to find in one individual idiosyncrasy to one* food substance alone
>
> In nearly all cases of food allergy observed, eczema had existed at some time
>
> Out of eighteen cases of pronounced eczema sixteen showed cutaneous reactions to the proteins of one or several foods (fourteen to egg, twelve to cow s milk)
>
> That the relationship of the food idiosyncrasy to the eczema may be causative is attested by the therapeutic results, but withdrawal of the toxic food is not always followed by a prompt disappearance of the eczema
>
> A great number of people, subjects of food allergy, give cutaneous reactions to toxic foods, and so far as determined, this reaction occurs only in cases of food allergy except in the case of those individuals in whom urticaria factitia is present
>
> Eosinophilia may be present in cases of food allergy
>
> In all cases where complete tests have been made the offending food constituents have been the proteins Guinea-pigs can be passively immunized by the injections of blood or serum from an affected individual
>
> Patients immunized to egg do not remain immune unless large quantities of eggs are eaten continuously
>
> A severe attack of food poisoning renders a patient immune to attacks from the same substance for two to three months
>
> Thus the attacks may be cyclic and repeated tests must be made
>
> Family histories of similar allergy exist for several generations

In the discussion of this paper, J Howland stated that Blackfan had made cutaneous and intracutaneous tests in twenty-three eczematous children and had found them all sensitive to one or more proteins, almost all to egg, most to cow's milk, and two to breast milk Dr J P Crozer-Griffith remarked that in his belief other food substances than proteins could produce eczema

Continuing my first year's plan of campaign, two of my house officers, Dr L T Thaxter and Dr L M Van Stone, have made intracutaneous food tests on many of the persons of both sexes and of all ages who have been treated for chronic eczema in the outpatient department or in the skin ward of the Massachusetts General Hospital during my service The methods of procedure in these cases have been as follows In a certain number the skin was delicately broken by the rotation of a dental burr, while in others an exceedingly superficial incision was made with a clean, sharp scalpel The latter method was finally adopted because it produced less artificial disturbance in the controls of the factitiously urticarial subjects The flexor surface of the arm of the affected individual was cleaned, two parallel rows of four or more incisions were made, and on four of the incisions were placed a drop of cow's fat-free milk, a drop of oatmeal water or of lactose, a small piece of salt-free butter, and a drop of egg albumin (At times more detailed tests of many substances were made) The other four incisions or abrasions were untouched and left as controls A positive reaction consists in the reddening and infiltration and, in rarer instances, of the papulation of the skin If the control incision manifests the same reaction, the test is not considered positive

In this connection I want to emphasize two facts of omission I regret these facts, and in future work shall endeavor to correct them We did not work with the pure proteins of the various foods, and, as a rule, only one test *in* each individual was made It will be remembered that Schloss stated that food allergy may be cyclic, and for this reason he made many tests in his cases This serious omission on my part may account for the many wholly negative examples which will be noted in the following individuals tested — a condition which at one period last winter proved so disappointing that I nearly abandoned further prosecution of this theme

Strickler and Goldberg,[4] who injected various sterile extracts (egg, cow casein, fish, pork, beef, tomatoes and clams) into the skin of normal patients and patients suffering with several different skin diseases, state that no reaction should be considered positive which does not consist of infiltration to the point of papule or wheal formation which must persist for at least forty-eight hours — any reaction of shorter duration they consider spurious and representing only hypersusceptibility They conclude that when confronted with a positive reaction they are forced to believe that the foodstuff employed for injection is in some way concerned with the causation of the affection in question

This is another method, and perhaps from a purely scientific point of view the most exact one to adopt in the future study of this whole question of the etiologic role of food poisoning in the production of eczema

WHOLLY NEGATIVE CASES

Case 1—G C T, aged 23, stenographer Face and neck crusting and fissured, arms, hands thighs and ankles show papules Food tests negative, October 16 and 26

Case 2—K M C, aged 68, laundress Skin dry, red and covered with fine scales

Case 3—J L, aged 65, rubber refiner Duration of disease, two months Neck, face, forearms and lower legs are red, infiltrated, excoriated and crusted

Case 4—L W, aged 14, schoolboy Duration of disease, three years Thickening, lichenification and excoriation of body generally Food tests negative, Jan 21, 1915, and again, Nov 2, 1915

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[4] Strickler Albert and Goldberg J M Anaphylactic Food Reactions in Dermatology, The Journal A M A, Jan 22, 1916, p 249

Case 5—G T, aged 79, clerk Eruptions of disease off and on for ten years Skin more or less universally dry and infiltrated and the thighs badly excoriated

Case 6—F L, aged 66, housewife Disease present to our knowledge during twenty years The forehead, cheeks and chin are dull red, dry and scaling

Case 7—M K, aged 42, housewife Eczema for twenty years Elbows red, infiltrated and excoriated

Case 8—W F, aged 13, schoolboy Treated by me off and on for eleven years Present eruption consists of small pinhead papules with punctate excoriations Chest, axillae, abdomen and groins affected

Case 9—J M J, aged 34, housewife Disease present during eleven years Present outlook developed five months previously Right ear and cheek and neck are pink-red and finely scaling Hands are red and fissured (uses borax soap and powder and occasionally sulphonaphthol)

Case 10—J B, aged 6, schoolboy Disease six years in duration Pubes and adjacent thighs are red, papular and thickened, flexures of forearms are red, fissured and oozing

Case 11—B E G, aged 7, schoolgirl Both ears are red and oozing

Case 12—M J C, aged 41, housewife Used borax and soapine much Sides of fingers are red, fissured and crusted

Case 13—B P, aged 23, woman stitcher in shoe factory Backs of hands moist and crusting

Case 14—M H S, aged 21, student Moist, crusting patches on hands

Case 15—M M, aged 16, schoolgirl A dry eczema of both hands of two years' duration

Case 16—B T, aged 42, cigar maker Disease present off and on for eighteen months At present, deep-seated papulovesicles (?) on both hands

Case 17—R. S, aged 2 months, a boy with nummular areas of erythema, infiltration and scales over head, trunk and limbs of four months' duration

Case 18—B S, aged 1 year, a breast-fed and very fat girl who has had the disease practically since birth The children's department suggests that some internal secretion is upset The cheeks and chin show fine, pink papules and the groins are red and moist

Case 19—W S G, aged 40, motorman Disease present for four years, more or less of the time A previously dry and excoriated skin was simply erythematous at the time of the tests

Case 20—H A C, aged 42, rubber tire repairer For one year hands have been rough, red and scaling

Case 21—W H, aged 15 months Disease began at age of 6 weeks and has persisted There has been much oozing and crusting on scalp, face and arms

Case 22—G E, aged 7 months Eruption began six months previously, and at the time of the tests there were papules on the buttocks

Case 23—H J W, aged 4 months Patches of infiltration, exudation and crusting on cheeks and extensor surfaces of the arms of several weeks' duration

Case 24—J G, aged 6 months, breast-fed girl Duration of disease, three months The face is erythematous, oozing, crusting and fissuring

Case 25—W F C., aged 20, clerk Fingers have been infiltrated, dry and scaling for seven months

Case 26—B C, aged 15, schoolgirl Disease has been intermittently present for ten years Present attack is three months old and consists of redness and fine vesiculation with some crusting on palmar surfaces of right finger

Case 27—A S aged 38, scrubwoman For eight months September 1, palms and fingers show occasional vesicles and fissures October 20, palms thick and dry

Case 28—E. D, aged 38, housewife. Uses naphtha and borax soaps Duration of disease seven years Palms red dry and scaling

Case 29—S U, aged 50, trained nurse September 14 redness excoriation, fissuring and crusting on top of three toes for two weeks October 5, dull brown, sharply bounded, slightly infiltrated skin

Case 30—M M, aged 62 Eczema for thirty years Whole scalp and adjoining face and large part of body are infiltrated, dry, red and scaling

Case 31—E M, aged 17, clerk Fingers show patches of redness, oozing, infiltration and vesiculation

Case 32—G H, aged 1 year Disease present almost since birth Now behind and under ear is an erythematous, moist, sharply defined area

Case 33—L K, aged 54, housewife Sixteen years' duration Disease present at first on palms and for last two years on legs and thighs At present the palms are very dry and scaling and the legs show excoriated papules

Case 34—N A H, aged 27, saleswoman For five months there has been a crack behind an ear Two weeks ago the process waked up, and now there are moist areas behind both ears as well as dryness and scaling of neck and upper chest

Case 35—S F, aged 3 months Duration, one month Generalized erythema and mild exudation Baby is breastfed

Case 36—S R, aged 13 weeks Breast-fed For two weeks cheeks and forehead have shown minute papulation and furfuration

Case 37—L J P, aged 22, stenographer Off and on for two years At present, face and neck infiltrated, dry, scaling and excoriated

Case 38—A G, aged 27, housewife Backs of hands are dry, leathery and fissured

Case 39—S G, aged 50, shoemaker For one year has had redness, dryness, infiltration and scaling of hands and wrists

Case 40—G W M, aged 62, painter and wood finisher for last eight years Eczema for last five years Face is red infiltrated and scaling

Case 41—D B, aged 4 months Disease present for three months and at present shows a mildly exudative condition of the face and neck.

Case 42—T G, aged 7 months Dirty yellow crusts on both cheeks for last two weeks

Case 43—G M S, aged 18 schoolgirl Skin of thumb dry, infiltrated, scaling and fissured for six months

Case 44—M A G aged 48, housewife Eczema "for years" Left hand and fingers edematous Skin excoriated and shows many superficial pustules

Case 45—J J W, aged 9, schoolboy Child painted himself red and eruption appeared and has persisted Whole face and both arms are covered with an almost coalescent excoriated, papular eruption

Case 46—J C F, aged 61, trolley car conductor Large areas of redness, infiltration and scaling over major portion of trunk and extremities

Case 47—J R, aged 1 year Breast-fed Face and ears have been red, excoriated and exuding for one month Second attack

Case 48—M G, aged 11, schoolgirl Eczema "for years" Skin at present generally red, thickened and fissured Face erythematous and scaling

Case 49—M E B, aged 26, teacher For last three winters eczema has appeared Now there are small papules on hands forearms, face, neck and upper chest Elsewhere the skin is dry and furfuraceous

Case 50—J T, aged 20 months Duration three months Crusts and fissures on face and scalp

Case 51—P S, aged 65, wool weaver For one year scrotum has been itching, red and infiltrated

Case 52—W S, aged 47, cigarmaker Hands dry and scaling for previous five months

Case 53—L R. S, aged 53, housewife Four years' duration Crusting lesions on scalp, neck and chest

Case 54—H S, aged 3 months Six months' duration Forehead and cheeks are oozing and crusting

Case 55—H L S, aged 35, woolen weaver Disease present for four months At present occiput, palms, feet and toes show sharply defined areas of redness, thickening, fissuring and small superficial pustules

Case 56—J S, aged 28 Housework. Eczema "for years" Palms now show irregular, ill-defined areas of mild thickening with erythema and tendency toward fissuring

Case 57—R B T, aged 66, housekeeper Duration one month A general erythema over trunk, limbs and face

Case 58—E B, aged 6 weeks Breast-fed and vomits after feedings For two weeks there have been miliary papules over both cheeks and in scalp

Case 59—J T, aged 62, cutter in shoe shop Disease evident for four months, and at present face is dusky red, dry, infiltrated and scaling

Case 60—M F aged 23 Housewife who uses soapine and sulphonaphthol Backs of hands and fingers are very harsh, thickly infiltrated, very dry, and covered with long, deep fissures

Case 61—H W D, aged 58, bartender Five months' duration Back of ears, neck, arms, hands and ankles dull red, infiltrated and scaling

Summarizing these sixty-one cases of eczema which, on one examination, have given negative reactions to all the food substances inoculated, we find twenty-five examples, or 40 per cent, of the moist, oozing, crusting type, twenty-nine, or 47 per cent, of the red, infiltrated, *dry or scaling variety, and seven, or 11 per cent*, of the papular kind

WHOLLY POSITIVE CASES

Case 62—M G, aged 9 weeks Breast-fed Cheeks finely papular

Case 63—A B, aged 26, male stitcher in shoe factory Duration one year Process started with vesiculation of soles and skin and is now infiltrated and fissured

Case 64—J F K, aged 4 Eruption appeared one week after birth and now appears as fine, bright red papules on scalp, neck, chest and buttocks

Case 65—H C, aged 40, barber A few papules and vesicles are present on index finger

Case 66—A S, aged 26, housewife Five months' duration Hands always worse after immersion in water Pinhead vesicles persist on fingers

Case 67—M S, aged 24, housewife For nine months *patient has had infiltration and vesicopapules* on backs of hands and fingers

Case 68—S T, aged 43 Pick and shovel Eight months' duration Skin of legs shows sharply bounded, red, glazed and dry infiltrations

Case 69—E M, aged 6 months For four months cheeks and scalp have shown deep excoriations and bloody crusts Two months later the scalp was well and the cheeks dry, pink and scaling

Case 70—F T, aged 6 Disease has persisted six months and at present the skin of eyelids, ears and scalp is infiltrated, crusting and excoriated

Case 71—W C C, aged 42, chauffeur Eczema for seven years The lower half of one leg is moist, red, and apparently without the horny layer

Case 72—L S H, aged 48, baker Two months previously the lower leg was infected and now the skin is red, infiltrated and papular

Case 73—I R, aged *3½ months The first child had* eczema also Patient breast-fed and for two months the cheeks, forehead and anterior part of scalp have shown scattered coalescent papules, some of which are excoriated and oozing

Case 74—T K, aged 7, schoolboy Duration three weeks A prurigo-like eczema

Case 75—F L, aged 10 months and bottle-fed for last four months Following an earache of one week without any applications the skin around left ear and of cheek broke out into papules and masses of redness and crusting

Case 76—M C S, aged 12, schoolgirl Skin generally dry and harsh, scalp dry and finely scaling, and pinhead papules generally over the whole body

Case 77—I S, aged 8 months Bottle-fed Two weeks' duration Skin of back and flanks very red and finely papular

Case 78—H M, aged 7 months Breast-fed Eczema for eight weeks *At first vesicular and now the* skin of face is reddened and thickened

Case 79—L M, aged 30, housewife Disease present for four years An attack observed after the use of soapine, and another, three months later, following the use of naphtha soap

Case 80—P D, aged 26, barber Eruption present for eleven months

Grouping these nineteen cases which, on one examination, reacted positively to all the food types inoculated, we find nine, or 50 per cent, of the moist variety two, or 10 per cent, of the dry sort, and six, or 33 per cent, of the papular kind (The type of one case is not recorded)

CONTRADICTORY CASES

Case 81—E G, aged 45, housewife Uses naphtha soap, washing soda and soapine Eczema comes and goes October 21, fingers red and swollen and paronychia is present Food tests are negative October 27, food tests positive

Case 82—M E M, aged 18, stitcher in overcoat factory Eight months' duration October 10, both hands show large areas of reddened, dried and exfoliated skin Food tests positive November 10, treatment heals but does not cure Food tests negative

Case 83—F G, aged 1 year Face, scalp, back and lower arms are red, infiltrated, oozing and crusting October 20, food tests positive October 22, food tests all negative

These three cases are naturally too few in number to be of any value statistically, but for the sake of uniformity let us record two, or 66 per cent, moist examples, and one, or 33 per cent, dry and scaling

CASES POSITIVE TO ONE OR MORE ELEMENTS

Case 84—N H, aged 5 months, breast-fed boy Disease evident for five weeks Face and scalp are a mass of excoriations and crusts Albumin +

Case 85—H K, aged 5 months Breast-fed Intertrigo for three months, general eruption for two days consisting of flat-topped, small-sized, pink papules on forearms, trunk and legs Fat +, starch +

Case 86—E M G, aged 73, housewife Both feet show areas of redness, scaling and fissuring Fat +

Case 87—J M, aged 26, bricklayer Palms are moist, oozing, crusting and fissuring Fat +

Case 88—R H aged 16 months Second attack similar in nature to the first, one year previously Face, back of hands, and bends of knees are red, moist, oozing and crusting Milk +, egg albumin +

Case 89—I M, aged 3 Duration perhaps a year Both arms are raw Child much neglected Starch +

Case 90—M L R, aged 8 months, breast-fed boy Eruption present almost from birth Buttocks show fine papules and excoriations Mother says baby always breaks out after eating eggs Egg albumin +, wheat +

Case 91—B F, aged 45, housewife One year's duration Palms and fingers are infiltrated, exuding and crusting Starch +

Case 92—*J T C, aged 60, teamster Ten months' duration* A similar condition two years previously There is a small, oozing and crusting area on right palm Fat +, starch +

Case 93—B P, aged 17, woman cementer in rubber factory For six months face neck and hands have been red rough, thick and scaly Fat +, starch +

Case 94—R K, aged 23, housewife Duration one year Fingers and palms are patchily red, vesicular, crusted and fissured Fat +

Case 95—E B, aged 33, housewife Afflicted with eczema for twenty-five years, usually beginning in August and lasting until the advent of cold weather Inspection shows oozing and fissuring of elbow and abdomen Fat +

Case 96—T M, aged 38, carpenter For twenty years man has had, despite much treatment from many doctors, coarse, flat-topped, red papules on cheeks and nose Albumin +, fat +

Case 97—P F C, aged 49, shipper A similar attack one year ago Three weeks previously man swept out a freight car and felt choked by the dust, and the skin prickled Now the left face and neck are red, moist, and crusting Fat +

Case 98—O C., aged 10, schoolboy There are infiltrated and excoriated papules on deltoid areas and on abdomen Albumin +

Case 99—N L, aged 16 months Cheeks and ears are erythematous and mildly exudative Albumin + +

Case 100—D J S, aged 3 months, breast-fed boy Duration two months Both cheeks show indefinite, pink, dry and scaling areas Fat +

Case 101—J M, aged 45 The face, neck and ears are bright red and infiltrated and in places oozing and crusting Fat +

Case 102—M L P, aged 1 year, breast-fed boy Scalp and face red and moist Albumin + + +

Case 103—R. M, aged 7 months Duration six months A generalized vesicular eczema, most emphasized on face, scalp, neck and upper chest. Albumin + + +

Case 104—M S, aged 6 months The skin of face, ears, trunk and arms is brilliant red, oozing and excoriated Albumin +

Case 105—I S, aged 3 This girl has spent more or less of her life in the skin ward Whole body red—at times moist, at others dry and scaling Albumin +

Case 106—M C S, aged 12, schoolgirl Skin is generally dry and harsh and easily irritated There are pinhead papules over whole body Fat +, starch +, milk +

Case 107—T J G, aged 21 months Eighteen months' duration Right side of face is pink and moist and shows a few papules Albumin + +

Case 108—S H, aged 3 months For two weeks scalp and upper part of cheeks have been erythematous, vesicular and crusting Albumin +

Case 109—H V, aged 8 months Duration three months Subacute exudative condition of face, scalp, neck and upper chest Albumin + +, starch +

Case 110—R C, aged 2 months, breast-fed girl Vulvar region is claret red, edematous and moist Fat +

We find, therefore, in this partially positive group, nineteen, or 75 per cent, of moist cases, four, or 15 per cent, of dry, and four, or 15 per cent, of papular Studying these cases over more in detail, we note in the nineteen moist examples of eczema ten anaphylactic to egg albumin, seven to fat, four to starch, and one to milk Of four cases of dry eczema, one reacted to egg, four to fat, two to starch, and one to milk Of four papular cases, two proved sensitive to egg, two to fat, and two to starch Thus we find that out of thirty-six positive reactions in these twenty-seven sensitized individuals, thirteen, or 36 per cent, were due to fat, and thirteen, or 36 per cent, to albumin — in other words, we must conclude that 72 per cent of our eczema patients are susceptible to egg albumin and butter fat, while only 22 per cent react to starch and barely 6 per cent to milk

These various percentages differ considerably from those recorded in my first year's communication, but perhaps we have not progressed far enough in this work to make our tables of any permanent value as yet There is, however, one very striking and to me inexplicable and rather discouraging fact in comparing my work of the previous two years, and that is the great proportion of wholly negative results recorded this year, that is, 55 per cent against only 20 per cent last year I have no reasons to offer for this disappointing discrepancy I cannot believe that the reason lies in the fact that different men made the tests, for this part of the work of last year was done by two or three men, while the same holds true for the present series Nevertheless, I have not lost faith in the procedure or in its probable value, which I believe will be proved in time Let me repeat that the pediatricians state that the test to be of conclusive value must be performed more than once on the same person

Before leaving this part of my theme, I wish to state that I am not trying to prove that all cases of eczema are due to food idiosyncrasy My intent is to bring to notice the fact that in certain persons this anaphylactic phenomenon is present and in the course of time to be able to prove that this state is responsible for the susceptibility of these persons to external irritants which remain innocuous to their fellow workers and fellow men

STOOL EXAMINATIONS

There is perhaps another method of attacking this question I refer to the macroscopic and microscopic examination of the feces From this procedure we can learn whether or not the digestive and assimilative powers of eczematous individuals are on a par with the normal standard These examinations have been made by Dr Lewis Webb Hill and by my house officers, Dr Thaxter and Dr Van Stone

The methods of fecal examination are too well known to require any explanation on my part I shall merely state that the usual procedures have been followed in the following cases

CASES WITH NORMAL STOOLS

Case 111—J A T, aged 51, vice president Duration of disease fifteen years Attacks appear whenever patient is overworked At present a widely distributed, very red, almost confluent, papular eczema

Case 112—J M, aged 45 Face, neck and ears are bright red, infiltrated and in places oozing and crusting Fat +

Case 113—T J A, aged 53, bottle washer Disease present for four months Face ears, neck, chest, abdomen thighs, buttocks and soles of feet are red, infiltrated and scaling

Case 114—D F, aged 5 Eczema has been present for seven months and is rather generally distributed Skin is slightly reddened, roughened, infiltrated and fissured and a few papules are evident.

Case 115—M J D, aged 74, housekeeper Skin shows areas of redness, roughness infiltration and excoriations

Case 116—J G F, aged 61, street railroad conductor Duration nine weeks Large areas of redness, infiltration and scaling are present. Food tests are negative

Case 117—J R, aged 20 months, breast-fed girl Child observed in second attack Face and ears are red, excoriated and exuding Nits are present Food tests negative

Case 118—M L P, aged 1 year, breast-fed boy Face and ears show pink-red papules Albumin + + +

Case 119—M S, aged 11, schoolgirl Eczema "for years" and at present the face is red, dry and furfuraceous and the skin of the body is generally red, thick and fissured Food tests are negative

Case 120—H M, aged 9 months Duration of disease eight months Breast fed Skin is reddened and thickened and in places moist Food tests are all positive

Case 121—R M, aged 7 months Disease present for six months and consists of generalized vesiculation, especially on scalp, face, neck and upper chest Albumin + + +

Case 122—J T, aged 62 Cutter in shoe shop Duration four months Face is dusky red, dry and furfuraceous Food tests are negative

Case 123—M F, aged 23, housewife Patient seen in second attack of disease Backs of hands and fingers are thickly infiltrated, very harsh, very dry and covered with long deep fissures Food tests are negative

Among these thirteen persons with normal stools, seven, or 54 per cent, exhibited eczema of the dry type, four, or 30 per cent, of the moist variety, and two, or 15 per cent, of the papular sort

CASES WITH EXCESSIVE FATS OR SOAPS IN THE STOOLS

Case 124—P F, aged 11 months Disease present for ten months Breast-fed for 3½ months Face and left shoulder show a few persistent areas of red, slightly infiltrated, dry and slightly scaling skin

Case 125—A C, aged 49, clerk Four months' duration Palmar surfaces of fingers are red, dry and scaling

Case 126—A C, aged 60, physician Disease has been present intermittently for six years, and for the last three months the patient has observed a dusky edema of eyelids, pink-red maculopapules on forehead, and redness, infiltration and scaling on several fingers

Case 127—H W D, aged 58, bartender Five months' duration Ears, neck, arms, hands and ankles are dull red infiltrated and scaling Food tests are negative The stool shows microscopically a rare globule of free fat, a small amount of soap and an occasional starch particle

Case 128—M S, aged 6 months Face, ears, neck, chest, trunk and arms are brilliant red, oozing and excoriated Albumin + The microscope shows a slight amount of fat and a considerable degree of soap

Case 129—I S, aged 3 A frequent visitor to our skin ward The whole body, including the face and scalp, is red and infiltrated, in places dry and in places moist Albumin + Macroscopically a typical soap stool, microscopically there is a considerable amount of neutral fat and an excess of soaps

Case 130—M C S, aged 12, schoolgirl The skin is generally dry and harsh and easily irritated The scalp is dry and finely scaling There are pinhead papules generally over the whole body Fat +, starch +, milk + Microscopically the stool shows a moderate excess of soaps

Case 131—M E B, aged 26, teacher Disease present for last three winters, absent in summer Face, neck, upper chest, arms and hands show small papules some of which are excoriated and oozing while others appear dry and furfuraceous

Case 132—F Q, aged 20, brick maker Disease for sixteen months Face, scalp, trunk and extremities show areas of infiltration, papules, excoriations and crusts Some cellulose and a small amount of soap are present in the stools

Case 133—J T, aged 20 months Disease of three months' duration Greasy crusts on scalp, and crusts and fissures on face Food tests are negative Microscope shows a moderate excess of soaps, but no free fat

Case 134—P S, aged 65, woolen weaver Man has had an itching, red and infiltrated scrotum for one year Food tests are negative Stools are not formed and gas fermentation is present Microscope shows a moderate amount of soaps

Case 135—W S, aged 47, cigar maker Man has had previous attacks of eczema which disappear when occupation is given up Present eruption apparent for five months The hands are dry and scaling Food tests are negative The microscope reveals a very small amount of neutral fat

Case 136—E G, aged 7 months Breast-fed Duration two months Over the whole face are thick, dirty, heaped-up crusts and excoriations There are also a few papules on both arms November 30, and December 8 and 13, a moderate amount of soaps were found microscopically

Case 137—A T B, aged 43, housewife A varicose eczema which has appeared also in 1908 and 1911 A small amount of free fat occurs microscopically

Case 138—L R K, aged 53, housewife A recurrent eczema At present there is crusting on scalp neck and chest Food tests are negative The stool is foul, brothy, semisolid with neutral reaction Considerable excess of soaps and moderate excess of starch are present

Case 139—T J G, aged 21 months Disease evident for eighteen months Right side of face is pink and moist and shows a few papules Albumin + Stool is strongly acid, loose, foul, brothy, and shows gas bubbles A few neutral fat droplets are present as well as an excess of soap A fermentation type of stool with moderate fat and sugar indigestion

Case 140—S H, aged 3 months Duration two weeks Scalp and upper cheeks are erythematous, vesicular and crusting Albumin + Stool is soft, yellow, very acid and contains many soft small curds, considerable mucus and considerable fatty acids and soaps

Case 141—H S, aged 3 months Duration of disease the same Forehead and cheeks are oozing and crusting Food tests negative Stools are rather watery, brownish-yellow, slightly acid and contain a small amount of fat

Case 142—I S, aged 8 months Bottle-fed Disease two weeks old Skin of back and sides very red and shows pinhead papules Food tests are all positive Five examinations of the stools revealed many soap suds, some soft curds, some mucus The sixth test when the eczema was practically gone revealed a normal stool

Case 143—H L S, aged 35, woolen weaver Duration four months Occiput, palms, feet and toes show sharply defined areas of redness, thickening, fissures and small pustules Food tests are negative Stool contains a moderate excess of soap

Case 144—J S, aged 28 Housework Disease present for years Palms show irregular, ill defined areas of mild infiltration with redness and tendency toward fissuring Food tests are negative Stool is musty and contains a large excess of neutral fat and of soap and of fatty acids

Case 145—R B T, aged 66, housekeeper Duration, one month General erythematous condition of face, trunk and limbs Food tests are negative Stool is black, foul, frothy, almost fluid, and contains a moderate excess of soaps

Case 146—E B, aged 6 weeks Breast-fed girl Two weeks' duration There are minute miliary papules over both cheeks and on scalp Diaper region is generally reddened Food tests are negative Stool is spongy and yellow, contains curds and a moderate increase of neutral fats and soaps

Case 147—J E H, aged 80, manufacturer A mild but very chronic and persistent erythematous and infiltrated eczema of the feet Stool is foul, alkaline and pasty and contains a slight excess of soap

Case 148—A W S, aged 31, physician An infiltrated, rather cornified condition of the palms of three years' duration Stool shows a very large excess of neutral fat and an enormous excess of soaps and fatty acids The microscopic field seems to be composed of fat

Case 149—C F, aged 6 months A girl breast fed for six weeks only Eczema present for three months The cheeks are fiery red and moist The hands, forearms, lower legs and feet show intracutaneous papules The stool shows a very rare neutral fat droplet and a moderate excess of soaps and fatty acids

Case 150—R F G, aged 6 months, a breast-fed girl Duration 3½ months Cheeks show small areas of redness, moisture and excoriation Stool is very acid in reaction and shows a moderate excess of neutral fat and a very large excess of soap and fatty acids

Case 151—H K P, aged 59 An eczema of many years' standing Palms and soles thickened and cornified in definite areas Stool is liquid, foul, brothy, strongly acid and contains a large amount of cellulose and a slight excess of neutral fat

Case 152—E L Y, aged 2 years Duration, approximately eighteen months At first marked egg anaphylaxis was present but eventually outgrown For last few months disease has been present in scalp which at present is buried under a mass of white, granular scales Stool shows a large excess of soap

Of these twenty-nine patients exhibiting an excess of fat or soaps in the feces, fifteen, or 51 per cent, showed a dry type of eczema, nine, or 31 per cent, a moist, and eight, or 18 per cent, a papular

CASES WITH AN EXCESS OF STARCH IN THE STOOLS

Case 153—F G, aged 1 year Scalp, face, lower arms and back are red, infiltrated, oozing and crusting Food tests are all positive, October 20, and all negative two days later Stool shows a large excess of undigested starch

CASE 154—H V, aged 8½ months, a breast-fed boy Duration three months Scalp, face, neck and upper chest are mildly exudative Albumin + +, starch + Stool is green, loose, strongly acid and contains a moderate excess of starch—"a typical stool of carbohydrate indigestion"

CASE 155—R C, aged 2 months, a breast-fed girl Disease present since birth Vulva is red, moist and edematous Food test is positive to fat The stool shows a typical fermentative diarrhea due to excessive carbohydrate fermentation

CASE 156—L R K, aged 53, housewife Disease four years old and shows crusting on scalp, neck and chest Food tests are negative Stool is foul and brothy and contains a considerable excess of soaps and a moderate excess of starch

In the four individuals whose stools contain an excess of starch, all displayed the moist variety of eczema

Summarizing eczematous individuals from this point of view, we find that 28 per cent passed normal feces, 63 per cent stools containing an excess of fat, and 8 per cent stools exhibiting a surplus of starch These are significant figures

Analyzing the last group of patients, do we find, when both skin tests and fecal examinations have been made in the same individual, that these two methods of study always reveal similar results? I regret to say that we do not In the patients with normal stools one showed a positive cutaneous test to all the types of food inoculated, and one a test positive to fat In the fatty stool group, ten patients showed cutaneous tests negative to all types of food inoculated, and two positive to starch In the starchy-stool group, one individual exhibited tests wholly negative These discrepancies are regrettable rather than vitiating to the object of our study—mere inability to digest and assimilate all types of food ingested does not necessarily mean that the individual has become sensitized to these foods, and yet the same inability may possibly play a rôle in the cause of the individual's eczema

CONCLUSION

From the detailed results it is evident that a goodly proportion of persons affected with chronic eczema show sensitization to the various types of food and that a much larger percentage are unable wholly to digest all the elements of the foods they eat

I cannot present exact figures showing the comparative percentage of improvement or of cures resulting from the correction of errors of diet in these eczematous patients as revealed by these two methods of examination—I can merely assert that chronic eczema should no longer be the bugbear that it was, in fact, with the aid of these two methods, one should expect to cure and cure reasonably quickly the great majority of these patients who present themselves for treatment I believe that this assertion could not have been made with equal truth two years ago

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS HEIMANN, KNOWLES AND WHITE

Dr Ernest Lewis McEwen, Chicago The sources from which the medical student gains his knowledge are, first the teacher, and, second, the textbook I have always found the teaching of the subjects of dermatitis and eczema extremely difficult, largely because the textbooks handle them in an unsatisfactory way They make the chief distinction one of etiology, eczema is caused from within, and dermatitis from without As a matter of fact, these cutaneous disorders both have external and internal factors of origin, and in the absence of clinical differences the student is wholly at sea as to what constitutes eczema and what dermatitis I have been on the lookout for some one to write a textbook on dermatology who will have the courage to abandon the old methods of discussing these subjects and to strike out along new lines One or the other of these two terms will have to be abandoned in the interest of clearness, and despite the fact that the term eczema has been used so long and so extensively I do not feel that we must necessarily retain it I believe Dr Heimann's conception of these two disorders is very close to what will eventually be accepted If eczema and dermatitis are identical then we must correct the nomenclature, one or the other term must be eliminated If such a change were made for the sole purpose of helping the student to a better understanding of a difficult subject it would be amply justified In searching for the causes of these cutaneous disturbances we have a wide field to cover and much earnest work must be done Dr White is following a promising lead and I believe we may expect valuable findings from his work The internal factor is the great unknown quantity which all must seek in these diseases, if we are to put them on a truly scientific basis

Dr Jay F Schamberg, Philadelphia I agree in the main with the propositions expressed by Dr Heimann We are all instinctively worshippers of tradition, particularly medical tradition, and we reluctantly give up such a term as eczema We have, however, during the course of many decades, gradually lopped off from this a comprehensive group of diseases like scabies, eczematoid, ringworm, etc, and this pruning will continue The most scientific classification of skin diseases is that which is based on etiology If it is definitely determined that a certain type of eczema is due to the poisoning from ivy or primula, that another is due to food, it is clear that they are separate and distinct conditions, although we may not be able to differentiate them always clinically The etiologic factor, it seems to me, is the dominant one, for through its recognition the cure is effected For the past year or two, through the activities of Dr Strickler, one of my associates, we have been trying to study the question of food sensitization and its relation to eczemas We must be prepared to realize that with some food substances, such as cow caseins and egg white, we are dealing with very pure proteins, and one must be warned against regarding all reactions with such rich protein substances as necessarily indicating a relationship to the eczema under consideration We not infrequently see reactions from milk, and yet on the exclusion of milk no favorable result On the other hand, remarkable results are sometimes achieved To produce an adequate protein extract of meat it is necessary to use an alkali, and it is important to determine that the alkali does not induce of itself a reaction in the skin These protein extracts must later be subjected to analysis for the determination of nitrogen to make sure of the amount of protein they contain We must be certain of our methods and technic before we can expect to arrive at results which will be really indicative of the true state of affairs Many persons are susceptible to certain external irritants by reason of an inherent susceptibility which others do not possess One man may be highly susceptible to poison ivy, for example, while his neighbors may be insusceptible to it I recently saw a girl of 14 who for three or four years has suffered from several severe attacks of ivy poisoning each year, perhaps three months of each year were spent in recovering from these attacks I determined to try to immunize her and ordered a 1 per cent tincture of rhus toxicodendron in 100 c c of menstruum, of which she was to take 3 drops after each meal gradually increasing the dose At the end of one month she was taking 60 drops after each meal Since then she has not only been able to pass poison ivy at close range, but also to touch it without bad effect The result was so striking that I expect to follow this method in other cases and I hope that some of those present will give it a trial

Dr Henry Truman Byford, Chicago Formerly I suffered from patches of eczema on the lower limbs, sometimes lasting for weeks, sometimes only a few days I began experimenting with my food and found that I would usually improve rapidly by cutting out the starches, and subsequently I found that by eliminating the fats the eruptions would always disappear very promptly After trying various diets, I concluded that milk and eggs were the causes, but that they did not act except when the stools contained fat or gave evidence of carbohydrate fermentation Hence, in my case the cure consists in keeping the alimentary canal in a normal condition and in eating the offending proteins in quantities that the system needs and is prepared to metabolize Acting on this belief I have no more trouble except about once a year or so when I grow careless and get caught with a beginning eruption In these rare attacks the itching subsides as soon as I begin to act on this belief, and the unoffending rash rapidly fades away Hence I consider the cause of my former attacks of eczema to have been deranged digestion that interfered with the complete digestion of certain proteins and thus resulted in anaphylaxis

Dr Richard L Sutton, Kansas City, Mo Dr Heimann and Dr McEwen suggest that we discard the term eczema, and consider all lesions now grouped under that heading as instances of dermatitis I wish to arise to a point of order After all of the various interlopers such as scabies, infectious eczematoid dermatitis, ringworm of the palm, and a host of other diseases have been thrown out, I believe there still remains a small group of cases, reflex if you like, but entitled to be considered as idiopathic nevertheless, which belongs in this category Dyer's preputial type, and Whitefeld's flexural variety may be taken as more or less typical examples Following Dr White's suggestions regarding the role excessive fats and starches and anaphylaxis play in the causation of infantile eczema, my therapeutic results in this disorder have been much better during the past two years than they were prior to that time It would be extremely unwise to consider all cases of eczema as examples of dermatitis, pure and simple Clinical observation, research, and frequent discussions will go far toward clearing up the obscure points in question

Dr E D Sager, Cleveland I think that in many instances these eczematous eruptions are the result of faulty metabolism, and my routine treatment in many cases consists of salicylate of mercury, in combination with taraxacum and an alkali in order to overcome the acidosis that is almost invariably present Tests of the blood and stomach contents should first be made Externally, I have had very good results with the Finsen light

Dr Michael Leo Ravitch, Louisville, Ky In regard to the classification of eczema, I agree with Dr Schamberg, and I do not think the term should be discarded Rather, I would divide the eczemas into two classes, i e, those due to internal causes I would call true eczema, and those due to external causes, such as occupation, mechanical or chemical irritants I would call dermatitis I believe that faulty internal secretions have much to do with the production of true eczema The sensitization of food tests carried on under Dr White ought to be commended While nothing definite has yet been established, we may yet learn a great deal from such experiments

Dr Andrew P Biddle, Detroit I would call attention to the treatment of chronic eczema from another point of view I agree with Dr White that the food element has much to do with its causation, but I have studied the subject from a different angle I have associated with me men who are specialists in other lines, internal medicine, gynecology, roentgenology, etc, and in as many cases of chronic eczema as possible have submitted the patient to a thorough general examination Our investigations have shown almost invariably some degree of ptosis or stasis of the bowel, and frequently, in women a displacement of the uterus In short, we have usually found some evidence of stasis in the ileum or colon, and, when we have succeeded in correcting this condition, we have aided materially the cure of eczema I am firmly convinced that the only way that we shall be able to cure chronic eczema is to find the underlying predisposing cause and have the condition corrected

Dr Ernest Dwight Chipman, San Francisco I was much impressed with the parallelism of the papers of Drs Heimann and Knowles They both lead back inevitably to the doctrine of cutaneous reactions which indicates that the same cause may provoke different reactions in different individuals, and that the same eruption may be provoked by most diverse causes in predisposed subjects One of the older French writers aptly remarked "There is no eczema, only eczematous" Dr White's paper was of particular interest to me because it emphasized one of the points which I tried to bring out in my paper on dietetics, namely, that while not every skin disease demands dietetic treatment those which do require such care do so for some definite reason and every contribution to our knowledge of fundamental dietetic indications relieves us by so much of the tendency toward haphazard feeding

Dr John G Burke, Pittsburgh I should like to mention two instances where one of twin babies had a vesicular eczema, the mate in both cases being entirely free from an eruption The first set were nursed at the breast and the second set were both receiving the same modified milk mixture As both these children received the same care and attention and the same food as its mate, if eczema is due to an external irritant or to an inherited weakness of the skin, or to the skin being sensitized by the food, why did one child have the eczema and the other twin escape it?

Dr James Moore King, Nashville, Tenn Several years ago I was very much impressed with the effect of milk on a child The patient was a boy with recurrent attacks of eczema, the milk would be withdrawn from his diet and he would get almost well, then he would resume his milk and have a prompt recurrence of his eruption Diet unquestionably plays a great part in eczema Whether the cause is due to the waste products of the food or to a separation or dissociation of the food molecule we do not know but it will probably be found to be a split protein which produces anaphylaxis or sensitization Urticaria is the result of various causes, and I see no more reason for giving up the term eczema than that of urticaria Many years ago Dr Isadore Dyer called attention to a form of eczema associated with adhesions about the prepuce in male infants in these cases I have found that circumcision gives almost immediate relief

Dr Lloyd Warren Ketron, Baltimore I should like to ask Dr White if he has used the intradermal method of testing the sensitiveness of the skin to these proteins? I did this with milk in about twelve or fifteen cases of skin diseases as well as normal cases and found that they all reacted

Dr. Isadore Dyer, New Orleans I have views on this subject somewhat divergent from what has been said Eczema has always appeared to me to be in most cases a condition rather than a distinct entity, and that if we take that view of it we could handle it better One difficulty is that the term eczema, almost ever since its origin, has been used as an omnibus both by the profession and the laity, and we have come to regard it as a generic term To my mind the word implies a catarrhal condition Our conception of a catarrhal condition in other organs than the skin is very clear, and my conception of eczema is that of a catarrhal condition in the skin itself That there are conditions of the skin which properly fall under the term of eczema has been generally appreciated I refer especially to the types of eczema which are called reflex, such as the type we see in infants which appears shortly after birth and lasts weeks or months, where the eruption will disappear and recur, presenting all the evidences of a catarrhal condition To me, no other term than eczema can be employed to define the condition, and we can find no excuse for calling it a dermatitis Its causes are varied, but nearly always the cause is reflex The adhesions of the foreskin causing reflex eczema have already been referred to by Dr King, and that condition as a cause of eczema in male infants has been repeatedly verified by me during the past twenty-five years since it was first suggested by me as the chief cause of reflex eczema in male infants

Dr Samuel E Sweitzer, Minneapolis In the teaching of this subject it has been my custom to classify all cases of known origin as dermatitis and all cases of unknown origin as eczema I sometimes have been inclined to believe that the cases I recognize as eczema differ somewhat from those I regard as dermatitis

I was very much interested in Dr White's paper regarding diet in infantile eczema In our clinic, we refer every child with eczema to the pediatrist for dietary regulation, and we do not get any results in those cases until the diet has been regulated In Minneapolis I have been struck with the increased number of cases of eczema which are due to a mild ichthyosis These eruptions appear in the winter and disappear in the summer, and I have found that these cases have responded very well to local treatment and also to the administration of thyroid We have also been on the lookout for alveolar abscesses in connection with chronic eczema and have endeavored to trace a connection between the two conditions

Dr H H Hazen, Washington, D C I do not know whether we are justified in omitting all mention of external parasites, especially bacteria, as exciting factors in some of these cases Drs Ormsby and Mitchell demonstrated the existence of such cases In children with discharging ears we often see a true vesicular eczema where the pus has run over the skin In children who sleep together we often see a true eczema extend from one to the other, showing evidence of a definite contagion There is another common type that begins with a small vesicle, if you will remove the top from one of those tiny vesicles and thoroughly cauterize the lesion, you will prevent the development of other vesicles I have taken the contents of such a vesicle and inoculated myself with them and have been successful in causing an eczema This has led me to the belief that in some of these cases there is a bacterial infection, while in others there must be a predisposing cause In regard to the observation made by Dr Biddle I would say that during the past two years we have roentgenographed several hundreds of patients, and in almost every instance we have found some degree of abdominal ptosis, so that I have come to the conclusion that we must not attach too much importance to this factor In regard to the intradermal injection referred to by Dr White, it would be interesting to try the final food products and see what they would do, as Dr Ketron has suggested to me

Dr H C Baum, Syracuse, N Y This question of nomenclature has brought out very divergent views I myself do not see that it matters very much provided we keep the fundamental nature of the trouble in our mind For years we have taught that all so-called eczemas were examples of dermatitis, and the latter we divided into two groups, one of known cause, the other unknown Dr Heimann has crystallized these thoughts in his paper and fortified them with pathologic evidence Dr White and his associates have opened up a new field, and I think we are all hopeful that its further development will aid greatly in the care of these patients There is one aspect of the subject to which I would like to refer, namely, that of diet Some patients cannot tolerate starches unless something is given to aid in the digestion of the starches and the same is true of certain protein substances After all, Nature is the best physician and if we go back to Nature and put our patient in a high state of physiologic health, he will do better than if we eliminate this and that article of diet and neglect his general condition

Dr Franklin W Cregor, Indianapolis Possibly the physiologist might help us in clearing up these so-called anaphylactic reactions Years ago Crocker called attention to our inability to explain the blush areas anatomically, while the more recent theory is that anaphylaxis may be attributed to the blood platelets producing a partial thrombosis and thereby exciting a trophoneurosis It is a fruitful source of investigation, and we must depend on the physiologist for some aid in its solution

Dr Robert A C Wollenberg, Detroit We must consider not only quality, but also quantity, i e, caloric values We know that most Americans eat too much meat, and considering the excess food in the light of a waste product, we can readily see that as such it may give rise to some of the phenomena which we describe at the present time as eczema Working along these lines, I have been cutting down the fats and starches, having in mind both quantity and quality Most of the children we see have been fed too much starch, and by carefully regulating their diet we have been able to get some very satisfactory results

Dr Walter J Heimann, New York In spite of the apparently divergent views expressed by the various speakers, I think we are not so very far apart Dr Sutton did not think it right to abandon the term eczema because it represented a group of cases the causes of which are unknown I agree with the latter portion of his remarks As a matter of fact, it does not make much difference whether we call it eczema or dermatitis of unknown origin, but for the sake of common sense, when we definitely know that a certain condition is a pathologic entity and when we know its etiology, let us call it a dermatitis of such or such an origin, or, if we do not know its origin, let us admit it frankly in our terminology, favoring dermatitis of undetermined causation to eczema

In regard to the statement made by Dr Biddle, I am inclined to agree with Dr Hazen's view I cannot conceive of a gastric ptosis causing eczema, although if there is intoxication associated with the intra-abdominal condition it may act as a predisposing cause Dr Burke spoke of twins receiving the same diet and living under similar conditions, one suffering from an acute vesicular eczema and the other entirely free from the disorder Of course, such instances are difficult to explain, it comes down to the individual reaction of the child to a general cause, or to some local precipitating cause

In connection with Dr Dyer's remarks, I think he agrees with my conception of eczema, for I said that I regarded it as a condition rather than a disease As an inevitable corollary it follows that it becomes the duty of the physician to try to determine the underlying cause of the condition It would be as appropriate to call colitis of unknown origin an eczema of the colon, as it is to call a dermatitis of unknown-origin eczema

Dr Charles J White, Boston I am perfectly in accord with what Dr Heimann said in regard to the etiology of these disorders the only point is the question of terminology We have so many causes of eczema that it renders this question a very difficult one, and before coming to any definite conclusion as to the nomenclature of these disorders I would like to emphasize the statement that it should be settled by an international board of dermatologists, not by a purely American board Dr Schamberg mentioned an interesting observation in the treatment of a case of poison ivy, and I think we should follow up that line of treatment It is in accord with the approved method of treating hay-fever and other affections, the object being to render the patients immune I would like to add one other possible factor in the production of dermatitis venenata, namely, the spruce tree My father spoke of it in his book merely as a possibility in connection with the use of spruce gum, but yesterday I saw a case of undoubted spruce tree poisoning In regard to diet in psoriasis, while most physicians have been restricting the protein intake, my associates have gone on with the idea that by excluding the starches in psoriasis the patients would improve and their results thus far have been very encouraging These patients have been put on the Allen dietary Dr Ketron spoke of the intradural method of testing proteins I have had very little experience with it, but the more one wounds the skin in these cases, the more likely one is to produce these reactions Dr Sweitzer spoke of leaving the diet in eczema to the pediatrist I am not in favor of that Only a few days ago I heard a pediatrist say that all cases of eczema in infants should be treated by the pediatrists As to the thyroid treatment of eczema, it might be beneficial because we know that the administration of thyroid extract increases the perspiration When Dr Hazen referred to eczema in children with discharging ears, I wondered whether he was not getting into the impetigo class, this is a larger group than we appreciate

Dr Frank Crozer Knowles, Philadelphia I have been extremely interested in this discussion and I think it is a great pity that some decision cannot be reached on the subject of eczema We had a discussion on the subject before this section in 1908 and before the American Dermatological Association four years ago, but it is still, apparently, as far from being settled as ever

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Superstition and Medicine—Born in ignorance, nourished on superstition, clothed with mysterious rites and ceremonies, medicine has had a hard task to free itself from hereditary and environmental influences Attempts to break away from these adverse and retarding conditions has marked the highest efforts of the race During nearly every century since recorded history began, there have been some superior men, intelligent and far-seeing above the masses, who have contributed something to science Such were Hippocrates, Galen, Pare Servetus, Harvey and others whom we now delight to honor as contributors to knowledge and benefactors to the race—V C Vaughan M D *Science* Dec 8, 1916

SUMMARY OF THE PENNSYLVANIA STATE WORK IN POLIOMYELITIS

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The geographic range of poliomyelitis, as I know it, includes England, beginning in 1838, Norway, Sweden, Denmark, Germany, and on this side of the Atlantic ranging from Cuba to northern Alaska. In the last twenty-two years, several epidemics have appeared in different sections of the United States.

The first to occur in Pennsylvania was in 1907, when 131 cases were reported by the grace of the physicians, the disease not being as yet reportable. Seven counties (Elk, Forest, Jefferson, Clarion, Venango, Warren and Lawrence) shared in this outbreak. The next year there was a similar outbreak, but altogether limited to Adams County, which had been untouched the year before. Here, as later, the mapping of the cases shows that the disease is not more likely to reappear in a center previously infected than it is to appear in some new center.

In 1909 our commonwealth suffered but slightly from poliomyelitis. The progress of the disease elsewhere led me to call the Advisory Board of the State Department of Health together. The result of our conference was the promulgation of a regulation placing poliomyelitis among the diseases reportable in Pennsylvania, thus our first comprehensive morbidity and mortality statistics began in 1910.

Up to July of that year, few cases were reported, but then came a rapid increase. In the month of August we had 275 cases, while September showed 378 cases. In October the fall began, the month bringing only 197 cases. In November there was a further fall to 95 cases, and during December it went down to 15 cases. This visitation totaled 1,112 cases in six months.

During the year 1910 there had occurred 269 deaths from this disease. From this eventful year for Pennsylvania, we looked forward to the next year with anxiety, yet 1911 passed away leaving a record of only 177 cases. Then came 1912 with 267 cases, while in 1913 there was a drop to 141 cases, and in 1914 to 113, but again in 1915 a rise to 162 cases.

The cases in these years were very much scattered throughout our territory of 45,000 square miles; the scattering, however, was not uniform. Whole counties were free, and we really have been unable to collect data to account for this distribution. In some of the cases, in remote, isolated homes in the mountains, there was not much else to hold responsible except the United States mails, if there was an independent micro-organism or a host in which the organism was spending part of the cycle of its life, or possibly a mere carrier to be transported from place to place.

The only real nestling notable in 1914 was in the southwestern section of Washington County, where we had thirty-two cases. The concentration of 1915 was in the northwest corner of the state, in and adjacent to the city of Erie, where there were about a hundred cases.

The year 1916 opened well, and as late as July 1 only twenty-two cases appeared in our statistics. This condition existed notwithstanding that Greater New York had an unprecedented number of cases during the latter part of June. So severe was this outbreak that, after a visit to New York, I had a full realization of the hysterical condition of the public over the sudden visitation of the disease with its high mortality.

Dr. John J. Mullowney, assistant chief medical inspector, was at once detailed to Brooklyn to live, and to observe and report everything connected with the epidemic, from the environment to the subjects, both alive and dead. A letter to Commissioner Emerson of New York brought Dr. Mullowney every facility to study the situation in a comprehensive way. His reports soon made plain that a considerable number were driven into the hospitals by the regulation calling for a quarantine of eight weeks.

In certain sections, however, in districts in which the disease prevailed, there was a tendency to stampede from what was called the "plague," and Pennsylvania was already being infected by those in the acute stage of poliomyelitis, as well as those who were infected and went down on their arrival in our commonwealth in one, two, three, four, five or six days.

While I do not intend going into the details of the work done in Brooklyn, I wish to mention the fact that we collected flies of different species from the infected rooms. These we ground up and soaked in a neutral salt solution, using the filtrate to inoculate monkeys, altogether with negative results.

With the facts already mentioned before me, and letters, telegrams and telephone calls from our people, asking and even demanding that some radical measure be taken to prevent the plague, raging in New York and New Jersey, from spreading into our state, and in my ignorance regarding the etiology of the disease and its methods of transmission, together with the information that along the railroads leading from the infected centers of New York and New Jersey the disease was rapidly increasing and showed a marked difference at these points over other places in the state, I immediately called the Advisory Board of the State Department of Health to consider the advisability of quarantining Pennsylvania against other states. The result was the unanimous carrying of a resolution to quarantine. This meant the guarding of a thousand miles of boundary line.

The department, which had been confronted by other emergencies, had no trouble in selecting the geographic points necessary to guard against various methods of travel from our sister states.

Men were equipped, instructed, and on duty within about forty-eight hours after the call for mobilization. The absolute quarantining of the sick was fixed for thirty days. These radical measures were, as I have said, demanded by the public, and our want of knowledge forbade our resisting the wish of those whom we represented, and whose health and lives had been entrusted to our care. The county medical inspectors, the health and special officers, numbering all together about a thousand men, were instructed to caution every one against the introduction of the disease among us and to report by wire to the central office of the department of health in Harrisburg every case discovered.

Officers were instructed to arrest on sight and quarantine suspects against coming in from other states. Circulars were distributed giving careful instructions how to nurse the sick. Medical men were requested to visit the patients in the townships, villages and smaller boroughs. Nurses had their instructions to visit the poor patients and have the homes cleansed and screened against insect life. All foodstuffs for children were ordered cooked, and the acutely sick were gently cared for until the active poison had played its part, and then nurses sought hospital beds for the crippled children that they might receive the proper treatment to restore mobility

All railroad coaches coming from infected districts were disinfected, all second-hand furniture coming from other states had to have a clean bill of health, as did all incoming children under the age of 16 years These measures kept thousands of sick and infected children out of our commonwealth, and I shall leave it to those present to determine what relation that had to our fortunate escape from a repetition of what happened in New York and New Jersey

You must remember that when this was done, and today, the medical men in charge of the epidemic in New York thoroughly believed that they had abundant proof of transmission of the disease by contact and by third persons With this belief so thoroughly grounded in those who were dealing with so many thousands of cases, there necessarily came up the question of the advisability of moving the educational machinery of this commonwealth on a short period to get it out of the danger zone, by taking in a portion of the safer season of the coming spring time The result was that the advisory board voted to postpone the opening of all schools until Sept 29, 1916 This moved the entire piece of educational machinery on in one solid block without interfering with its organization by breaking cogs out of the wheels here and there through the limiting of the postponement to those under 16 The people, however, lost sight of the organization of the schools and demanded that they be put on the same ground with moving picture shows and other places of amusement, where only children under 16 years of age were forbidden to congregate The first order, therefore, was rescinded and the general rule passed forbidding all children under 16 years of age to attend school until September 29 This left the organization of the school system entirely to the educators, and they wisely ruled to keep the schools closed to those of all ages, and in many cases later than September 29

The curve of the insect life runs closely parallel to the curve of poliomyelitis The disease is essentially a disease of warm weather The few exceptions are to be found very far north where the custom of living in huts in great filth and heat, and amid insect life is common The environment in the very northern and cold climates must be thoroughly understood by us before we conclude that it contradicts our belief that we are dealing with a disease of warm weather

When we turn to our statistics, the analysis of the mortality of poliomyelitis by sex and age adds little or nothing to our previous knowledge concerning the occurrence of the disease or the fatality Nearly a fifth (19 8 per cent) of all deaths occur under 1 year of age, a little more numerous (20 6 per cent) are the deaths between 1 and 2 years For each of the periods from 2 to 3 years and from 3 to 4 years the proportion of deaths is close to 13 per cent , and for the next year of life drops to somewhat over 8 per cent Taken together, the deaths under 5 years make up almost three quarters of all For the next quinquennial period, between 5 and 9 years, the percentage falls to nearly 15 (more exactly 14 7) For the next it is a little over 5 (5 3), and the same percentage remains for all patients over 15 An influence of nativity on the morbidity or mortality is nowhere evident

An exhaustive report, including all phases of the epidemic in Pennsylvania, will appear in our annual report to the governor

FURTHER OBSERVATIONS ON THE CONNELLAN-KING DIPLOCOCCUS THROAT INFECTIONS

THEIR SEQUELAE, WITH ESPECIAL REFERENCE TO ARTHRITIS *

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The Connellan-King diplococcus is a small gram-negative organism It was first observed in my cases in the latter part of 1914, Connellan having found it a little earlier around the roots of teeth extracted by Hasbrouck and Palmer We have never found it outside of the mouth There, we have found it either in a tonsillar crypt or in some sinus in the tonsillar fossae after the tonsils have been removed Such cavities are partially anaerobic chambers Cultures have been made from the ear, the nasal chambers, and the nasal accessory sinuses, but so far they have all been negative for this micro-organism It grows slowly on most of the solid culture mediums, preferably on veal serum agar in the presence of moisture at about body temperature It is not pyogenic, but is a powerful toxin producer We believe it to be a local infection non-pus-producing, highly toxic, and noninfectious for the general blood stream Numerous blood cultures have been made from patients in whom this organism has been found, but so far all of them have been negative Likewise, many arthritic or so-called rheumatic joints in which this focal infection was believed to be the cause have been aspirated and cultured, with negative results In these respects it is analogous to the Klebs-Loeffler and tetanus bacilli

The clinical appearance of the throats in which this diplococcus has been found is characteristic, if this term is permissible from the comparatively small number of several hundred cases which have been observed by the author The color of the mucosa is purplish, distinctly darker than normal, and decidedly unhealthy in appearance The mucosa of the nose and nasopharynx is similar in appearance It looks lifeless and as if it had been the seat of disease for a long time The tonsils of the patients who have suffered from the more serious complications, as rheumatism, arthritis, nephritis, and cardiac lesions, have usually been rather small and submerged, with a brownish-yellow serum exuding from their crypts This serum has given such tonsils a distinctly moistened appearance This clinical observation coincides with the laboratory experience that this organism grows best in the presence of moisture Most cases in which this moistened appearance over the tonsils was found were seen by me months after the initial tonsillitis, and all of the patients consulted me because of an intractable arthritis, nephritis, or some such systemic condition that had resisted the ordinary treatment It has also been found in the large cryptic tonsils and in some pockets in the tonsillar fossae after the tonsils have been removed

We believe that the absorption of chemical toxins from this micro-organism is capable of producing serious pathologic lesions in the nervous system, in

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* Read before the Section on Laryngology Otology and Rhinology at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June 1916

the heart, kidneys, joints, muscles, glands, blood and respiratory tract These symptoms or sequelae may be so serious that life itself is endangered All of these complications have been observed in my clinical experience with this diplococcus Improvement and cure have followed the removal of this infection in numerous patients who had previously resorted to every known means for the alleviation of their symptoms, whether it was an obstinate asthma, arthritis, endocarditis, myocarditis, or nephritis By this it is not meant that every patient in whom this organism has been found has been cured, but that we have a record of at least one such case in each type in which the eradication of the focal infection by this organism has stopped all symptoms The typical clinical history of such cases is as follows

The patient had a tonsillitis of greater or less severity and, sometimes, even no discomfort was felt in the tonsils, but only an infection in the nose and throat was noticed Within a few days or a few weeks, some other symptom developed The tonsillitis or infection of the upper respiratory tract may have been so slight that it was entirely forgotten by the time the complication developed If the complication was arthritis, or the so-called rheumatism, it usually developed shortly after the initial tonsillitis As a rule, the severer the attack of tonsillitis the sooner have the complications manifested themselves

At the present time we have under treatment a patient who had a severe attack of tonsillitis three years ago, with a temperature running from 101 to 103 F Within two or three days from the onset of the tonsillitis, she developed a myocarditis She has not been out of bed since that initial attack of tonsillitis She has had a temperature of over 100 F and a pulse rate of from 110 to 120 every day for the last three years Her blood pressure is now about 105 mm of mercury She is helpless, not being able to sit up in bed even for her nourishment She is sometimes so weak that she cannot hold up a newspaper before her

The first patient in whom this micro-organism was found, associated with much contamination, had a severe chill, followed by an elevation of temperature to 105 6 F When his urine was examined the next day, it had albumin and hyaline and granular casts The nephritis and extreme toxemia were his only complications

Our observation has been that if the tonsillitis is severe, the complications generally ensue quickly, if mild, they develop later, in from one to eight weeks In our own patients, who have been seen during the initial attack of tonsillitis and treated with vaccines, no complications have developed after the treatment was commenced The complications have developed in all cases without a chill at the onset As just stated, one patient with this infection, associated with a mixed infection of the accessory sinuses and tonsils, had a severe chill at the outset This, however, has been the only patient who had such a chill

The prognosis of acute tonsillitis in which this organism is believed to be the causative factor varies greatly with the treatment All of my patients with acute forms of the disease who have been treated with autogenous vaccines have been relieved of all symptoms, and no complications or sequelae, such as arthritis and rheumatism, have developed Patients who have been treated in this manner made unusually rapid recoveries from tonsillitis In some of the acute cases there were nephritis and arthritis, but these also have been cleared up promptly by the treatment

On the other hand, I have seen many patients in consultation, long after the initial tonsillitis, who called on me because of some obstinate complication, as arthritis or some cardiac conditions, and this organism has been found in the tonsils as long as five years after the initial sore throat from which the trouble dated Many such patients have been relieved by the administration of autogenous vaccine and enucleation of the tonsils, as the case reports will show

We are therefore led to believe that some of these complications might have been averted by the prompt administration of the autogenous vaccine during the acute tonsillitis The pain and swelling in arthritis or rheumatic joints in a considerable number of cases of from one to five years' duration have been relieved by this treatment In some cases in which great changes or bony ankylosis and exostoses have taken place in the joints, the treatment has stopped all evidence of activity, as pain, redness, and swelling of the soft tissues, leaving only the deformity In a group of cases in which, in addition to the joint symptoms, there were cardiac and renal changes, great improvement in these conditions has taken place

The symptoms, complications, and sequelae of this infection can best be described by reciting cases which illustrate types These will follow after a few words on the treatment in a general way

Treatment—This consists in eliminating the infection So far as we know at the present time, the focus is situated within the mouth, either at the root of a tooth or in a crypt of the tonsillar fossae A culture is taken from the patient, and if it proves positive an autogenous vaccine is made It is prepared so that 1 c c represents 200 millions of the diplococci The vaccine is given three times a week until all activity of the infection has ceased, and then if the focus is in the tonsils, they are enucleated, unless there is some contraindication Patients whose teeth need attention are referred to a competent dentist for appropriate treatment

We believe that the administration of the autogenous vaccine not only stops the activity of the organism by overcoming the effect of the absorption of its toxins, but that it renders tonsillectomy a safer and more satisfactory operation Frequently after a tonsillectomy there is a low-grade sepsis, which is not only annoying to the surgeon, but also may endanger the patient's life For instance, we have seen several patients whose tonsils were enucleated for the relief of rheumatic pains immediately have a subacute exacerbation of the attack, which continued indefinitely, and the disease for the relief of which the tonsils were removed was not helped My experience with the autogenous vaccine treatment of these patients leads me to believe that much of the trouble can be averted by their use as a preliminary step to the operation

As there has been no precedent in the dosage of this vaccine, we have had to feel our way as we went along The dosage of even well-known micro-organisms has not been definitely established As first, 200 millions of the diplococci were given subcutaneously every four to seven days, and gradually increased according to the indications to be met and the reactions obtained For some time now, 200 millions have been given three times a week The dosage has varied according to the individual to be treated In the aged and debilitated and in young children the initial dose has been much smaller and was gradually increased according to the reactions If a severe reaction is produced in any one case, the dosage is reduced, and vice versa The reactions manifest themselves usually by an elevation of temperature of one or two degrees, local pain and redness, slight pains over the body, and frequently by a slight exacerbation of symptoms As a rule, these reactions become less and less until none are produced In some cases the organism has persisted in the tonsil even after all symptoms had disappeared and the vaccine had been given until no reactions were produced The reaction varies greatly with different individuals, and some patients complain of more pain in one arm than in the other

In previous communications[1] I have reported a number of cases of arthritis, nephritis, anemia, endocarditis, and myocarditis in which the Connellan-King diplococcus was the causative factor These patients have all been treated within the last two years, and it is now my purpose to add a further report on these cases

REPORT OF CASES

The first patient who was reported in the preliminary report was treated in November, 1914 He had at that time acute tonsillitis and nephritis All symptoms disappeared under the vaccine treatment He had a recurrence of tonsillitis in March, 1915 He received more vaccine, but his tonsils were not enucleated He made a rapid recovery from the tonsillitis At the present time he is well and has had no recurrence of the nephritis

Another patient mentioned in the preliminary report, and reported again later, consulted me in December, 1914 for the relief of a severe arthritis following an attack of tonsillitis ten months previously She was relieved of all active symptoms by seven injections of the autogenous vaccine In March 1915, she returned to me for a tonsillectomy At that time cultures made from the crypts of the tonsils again showed Connellan-King diplococci She had, however no symptoms either of tonsillitis or in the joints The tonsils were enucleated and a few doses of vaccine given, but there were no reactions She made an uneventful recovery from the tonsillectomy and has had no further activity in the joints Her right knee is ankylosed, but she has no pains and can walk without a crutch or stick, whereas when she first consulted me she had great pain and had to use a crutch in walking

Miss E S, who was reported as Case 4 in a previous communication, is perfectly well at the present time She first consulted me about a year ago for the relief of multiple arthritis and endocarditis following a tonsillitis five years before During the past five years in spite of treatment, the arthritis was progressive and this coupled with her cardiac condition, incapacitated her for work During the summer of 1915 she received vaccine treatment and her tonsils were enucleated The conditions were relieved promptly At the present time she is well, although her joints still show a slight deformity Her heart has a slight murmur, but it is so much better that the damage can be detected only by a very careful examination Her general condition has improved greatly, and she has been attending to her usual duties for the last six or eight months

The following new case is striking, and is typical of a considerable number in my private records

Miss D C aged 21, was seen by me in consultation April 2, 1916 Twelve weeks previously she had had a severe tonsillitis A few days later she developed rheumatism in nearly all the joints of her body The tonsillitis soon disappeared under the usual treatment During these twelve weeks she was confined to bed under the constant care of her family physician, nurses, and various consultants Her range of temperature was from 101 to 104 F When I entered her room her condition inspired me with the greatest pity She was lying there in bed with her arms folded over her chest in great pain, and she said, "Don't touch me" The fingers, elbows, knees, and toes of both sides were swollen, red, and exquisitely painful Her heart action was very rapid, and while no murmur could be detected at that time, one was expected to appear at any examination She had been treated with all the usual remedies without effect, and opiates were given to control the pain

A culture was made from the crypts of her tonsils It showed a pure culture of the Connellan-King diplococcus An autogenous vaccine was prepared and was given by her physician three times a week All other treatment was stopped when the administration of the vaccine was commenced

As a result the temperature came down within a few days and the heart action improved remarkably and rapidly The pain and swelling in the joints disappeared with equal rapidity About three weeks from the time the culture was taken from her throat I saw her again and she was in splendid condition She was up and going about as usual, had no pain in the joints, and felt splendidly It was most gratifying to see her so well and happy

If space permitted, a great many more cases could be reported, but these are sufficient to illustrate types

CONCLUSIONS

A study of these cases enables us to reach the following conclusions

1 The frequent presence of the Connellan-King diplococcus in the crypts of the tonsils or at the roots of the teeth in arthritic patients suggests that it may be specific, and that a simple tonsillitis may be followed by very serious complications, due to an absorption of chemical toxins

2 The danger of a general sepsis following tonsillectomy might be eliminated if a culture were taken from each patient

3 If the focus of infection in arthritis exists in the tonsil, the treatment should consist in the injection of an autogenous vaccine until all infection is cleared up and then the tonsils should be removed by enucleation

4 The blood changes in the Connellan-King diplococcus infections seem to be a simple anemia and, in a few cases, a slight increase in the eosinophils from 4 to 6 per cent

5 In some cases symptoms other than those for which treatment was instituted have disappeared For instance, in one patient with arthritis and marked ethmoiditis the culture was obtained from the throat Within two weeks the ethmoiditis had cleared up, while the arthritis was only slightly relieved Another patient with serious gastric disturbance, who had found it necessary to remain on a strict diet, was able to eat almost anything after she had received the treatment with the autogenous vaccine

40 East Forty-First Street

ABSTRACT OF DISCUSSION

Dr John J Connellan, New York About two years ago, Drs Hasbrouck and Palmer of New York asked me to examine their extracted teeth and ascertain if *Endamoeba buccalis* was present We were unable to find the endameba in any case As several of the cases showed abscesses, cultures were made The organisms found were the *Streptococcus viridans*, from the apex of the tooth and *S hemolyticus* from abscesses We also found in some of the cases a gram-negative diplococcus which I had not seen before, nor was there anything in literature calling attention to this organism I then asked Dr King if he would make cultures from other parts of the throat and mouth The result of such work showed this organism present in the crypts of the tonsils and around the teeth

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[1] King Abstract of a Preliminary Report on the Connellan King Diplococcus Infections of the Throat Laryngoscope 1915 25, 229 The Connellan King Diplococcus Infections of the Throat with Especial Reference to Rheumatism Med Rec New York 1915 88, 958

[2] Second reference of Footnote 1

Since that time we have found it in numerous cases at the apex of extracted teeth, some of which were decayed and others in good condition, but in which the roentgenogram showed abscess formation The organism is a typical bean-shaped gram-negative diplococcus It is slightly smaller than the gonococcus when it has attained its maximum growth on its best growing medium I have been unable to find this organism outside the mouth and throat Its best growing medium is human blood agar with a little veal serum added The main point in its growth is the reaction of the medium On not more than 0 2 per cent acid will the organism grow In preparing the medium it is absolutely necessary to use the titration method Litmus paper should never be depended on It does not produce acid as produced by other gram-negative diplococci, described by Dunham, from the nose and throat In using the Hiss sugar serums, we get no reaction except coagulation of albumin, showing that it is not a gas producer, which brings to mind why when found in these apparently good teeth with abscess formation at the apex there was no history of pain by the patient The organism is best grown at a temperature from 39 to 40 C It has a characteristic appearance on the medium, colony being a light, dull yellowish-brown with a rounded contour The size of the colonies is approximately that of the *Staphylococcus albus* Dunham, Van Lingelsheim and Elser and others have reported several gram-negative organisms found in the mouth and other parts of the body, but this organism does not compare with any that these investigators have reported As to the animal injection, intraperitoneal injections of guinea-pigs, dogs and white mice produced no symptoms Two cubic centimeters of sterile salt solution (a cubic centimeter containing approximately 100,000,000), were injected into the marginal vein of a rabbit producing death in four days The organism was recovered in the heart Complement fixation experiments are now being worked out by an investigator in New York City

Dr Emil Mayer, New York My own experience does not entirely tally with that of the speaker in that I cannot report anything like such a percentage of cures I had one instance which was very interesting a nurse in the Training School in Mount Sinai Hospital, who had been suffering for more than a year with a temperature ranging daily from 101 to 104 F, without any known cause She came to me because her tonsils had been troubling her for some time and she wanted to have them removed, but I felt that that was not the thing to do in connection with her condition so far as this temperature was concerned I then made a test and sent it to Dr Connellan and he reported very promptly that it contained the Connellan-King diplococcus and sent me some vaccine The vaccine was used and to my delight and surprise she lost her high temperature This lasted but five days At the end of that time the temperature went bounding on as before The second case was that of a young woman who came to me complaining of a mastoid pain, but further examination revealed that she was suffering from a general periostitis We found the same diplococcus-bacillus, and the result of the vaccine was all that could be desired She got entirely well The third patient was the most interesting who has come to me, and I am anxiously awaiting the results A man complained of a rather slight pain in his throat There was nothing much to be seen there I looked on it as a little local infection, and made application of the usual remedies With that he seemed to get entirely well, but in three weeks he came again with the same pain in the same place I suggested that I take a culture, and the result was a most beautiful colony of these diplococci-bacilli The question is, Is this one of the cases in which we probably have a forerunner of an arthritis, and shall we advise the man, in spite of the fact that he has had apparently few symptoms, to go through the vaccine treatment or shall we wait and see? If this man should decide not to take that treatment and subsequently should develop rather a severe arthritis, I think we should be very much in the position of demonstrating that this was undoubtedly the causing factor in his arthritis

Dr Virgil P Gibney, New York I had been looking for a long time on the *Streptococcus viridans* in the roots of teeth or about the alveolar processes as a cause of many of the arthritides On still further investigation I found that the Connellan-King diplococcus was a possible cause of arthritis We have, therefore, two causes of infection in the buccal cavity, namely *Streptococcus viridans* and the Connellan King diplococcus One of the cases shown by Dr King I recall very well It was a case of ostearthritis of the hip I found restricted movements and history of slight trauma Having acquired the habit of looking for the cause in the buccal cavity, I found some suspicious teeth, and had a roentgenogram made which confirmed my suspicions I also found that the tonsils needed attention Dr King and a dentist took the patient in charge, and he made a fair recovery He has still a little lameness, but he suffers no pain, and the outlook is very hopeful that he will be free from lameness and deformity Confirming what the doctor has said about the progress of the patients under the use of vaccines and the removal of the focus, I wish to say that the cure of an ostearthritis is not always phenomenal Recovery does not take place in a short time You will recall that this disease is accompanied by osteophytes about the margin of the joints making movement painful and it requires some little time to get rid of these deposits

Dr Isaac H Jones, Philadelphia Dr W P Conway of Atlantic City had frequent attacks of arthritis for eight years He became progressively worse and developed a severe endocarditis and such a marked nephritis that at one time he had complete suppression of urine His loss of weight was marked Dr King found his diplococcus in the tonsils, gave an autogenous vaccine and soon after removed the tonsils Dr Conway is now in perfect health It seems to me that we should attribute the cure to the removal of the tonsils rather than to the vaccine, although it is important to note that the vaccine produced a marked improvement even before the tonsils were removed

Dr James J King, New York The patient Dr Mayer spoke of as having the high temperature was afterward found to have a tuberculous peritonitis

Dr George F Cott, Buffalo Would you get the same results in removing the tonsils after using the vaccine?

Dr King That is a very important point Occasionally after a tonsillectomy a low-grade infection may continue and even endanger the patient's life By giving the vaccine before you operate you clear up that field and operate in a clean field and in that way avoid this danger To be sure, we do not see these infections very often, but they come sufficiently often for us to give the vaccine, clear up that infection, and then operate in the interval, just as we do in appendicitis By this means the operation is safer, and it is possible that all of these cases might be prevented if we would do this I have had no infection following my tonsillectomies in cases in which I have given the vaccine before the operation I have sometimes found the infection still in the tonsil, but it was inactive I had one patient in whom the culture was taken for the second time about a year after the vaccine was given We found the infection in the tonsil again, but there was no activity, whereas when I first saw her she had a great deal of arthritic pain and had to walk with a crutch The vaccine stopped the activity, stopped the pain, the arthritis disappeared, she got rid of the crutch and was perfectly well when she came back to have her tonsils removed

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Bartholin's Tercentennial—October 20 was the three hundredth anniversary of the birth of Thomas Bartholin at Copenhagen After studying at all the universities of Europe except the German, which at that time were desolated by the Thirty Years' War, he settled in Copenhagen and in 1647 became professor of anatomy in the university He changed to the chair of general medicine at the age of 40, and published a number of works on the history of anatomy and medicine besides reports of his own researches He never cared to practice medicine, and fled from Copenhagen when the plague swept down on it, but his fame placed Denmark in the lead in science during his career His works are in Latin, and his name is Latinized, his real patronymic having been Bertelsen The University of Copenhagen had a festival gathering, October 20, in honor of his tercentennial, Professor Maar delivering the memorial address

MEDICAL SUPERVISION OF STREET RAILWAY EMPLOYEES *

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MILWAUKEE, WIS

The highly complex character of modern business, and by this I mean big business, demands a physical endowment that is commensurate with the high intellectual endowment which has made possible the great industrial establishments that control the business of the world Such an organization requires diversified talent and as its growth is dependent on continuous existence, it is necessary not only that the general health shall be conserved, but that by continuous medical supervision, following elimination of defectives by preliminary examination before employment, the places of those whom disease or advancing age render inefficient shall be from time to time filled by trained subordinates To meet these conditions and to preserve the traditions of the business is the problem that every large corporation is confronted with

The aim of the employer is obviously to select from among those who apply a number who will give promise of developing after employment The applicant, excepting in special cases, is raw material that must be molded into efficiency, and because of the specialization which is the very essence of modern business, every man is not found qualified

Modern business differs from that of a quarter of a century ago in many particulars Under the old order, the man was not considered an entity He was merely a hand He came and went as the needs of the business demanded His relation to his employer was a negative one His joy and his sorrow were shared by no one and the tenure of his position was dependent largely on the whim of his immediate foreman When he became sick his place was filled by another He was dependent on the cheapest, unskilled medical services for his recovery and during his disability no provision was made for his immediate financial needs When he left the shop he lost all contact with the organization which employed him

This deplorable condition undoubtedly was the result of the sudden expansion of business in the decade following the Civil War The small shop gave way to the factory and every industry took on a corporate character The "corporation was without a soul," and in the keen competition which necessarily followed the man was lost sight of He was merely a hand at a machine and, by comparison, far less important than the machine itself

In the mad rush to accumulate fortunes the managerial mind was centered on the results of the year's work only and the sum of human misery that was added to the account found no place on the balance sheet Not only was business unmindful of the welfare of those whose life blood was poured out to create it, but it was also blind to the thought that the very essence of sound economic management was dependent on the welfare of the individual unit, and that unless that individual is physically and mentally alert, economic waste occurs

The railroads were among the first to learn the value of taking a human interest in their employees While the character of the occupation was necessarily hazardous in comparison with many other industries, it was by no means in a class by itself in this respect

In the development of modern business with its very humane interest in the welfare of its employees, we find the railroads many years in advance of the other industries Until within a few years no voluntary medical services were offered injured employees in our great American industrial establishments The first aid rendered was given grudgingly and in most instances was rendered by a city-maintained hospital without expense to the manufacturer The change of policy which has occurred is not altogether due to any softening of the heart, but rather to a combination of public sentiment expressed in the concrete form of industrial injury compensation laws and to more enlightened management, the result of education along public health lines by our government

How different from the very beginning of their corporate existence has been the practice of the railroads in taking care of their wounded employees They have recognized for more than a half century that injuries incident to operation were properly chargeable to the cost of operation This thought is the basis of all welfare work, as it provides the capital which is essential to making welfare work practical rather than sentimental

Railroad surgeons have been identified in the public mind with the operation of railroads ever since railroading began In no other industry have they been deemed so essential The general supervision of the health of the employees, which follows as a corollary to the general employment of surgeons throughout a large railway system, is a fact of importance that should not be lost sight of The friendly suggestion by the doctor to the man who is in failing health is the human touch of the corporation

Again, the general efficiency of railway employees is a matter of common knowledge The underlying fact of this efficiency is that railway men are picked men No one goes to work in the operating department of a railway until he has been examined by the company doctor

Here then is the first important lesson the industries must learn, that any kind of efficiency that is not based on a sound, alert, well-balanced human machine is bound to be economically disastrous The industries are just beginning to learn that the human mind is a wondrously complex mechanism and that machines cannot be adapted to men, but men must be sought out, by a process of elimination, who can adapt themselves to the machine They are learning the lesson also that physical fitness is a prerequisite to efficiency The matter of maintaining the average health of employees by physical examination, therefore, before and during employment, is in conformity with the advancement of modern medicine, which is distinctly preventive In recruiting for the army and navy, how careful at all times has the government been in its selection of material No matter how great the emergency, the culls are left behind With our thoughts centered at this time on preparedness, it is gratifying to the managements of the great railways to know that the government recognizes, in the well-trained, selected and disciplined men who make up the vast army of railway employees, an auxiliary effective arm for the military service

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* Read before the Section on Preventive Medicine and Public Health at the Sixty Seventh Annual Session of the American Medical Association Detroit June, 1916

* This article and the one by Dr Smith which follows are part of a symposium on Industrial Medicine.' The first two articles by Drs Mock and Clark appeared last week

The relation of human impairment to accidents is well known They bear to each other the relation of cause and effect It is therefore quite as important to save a man by a process of elimination from himself as it is to safeguard fellow employees who will be put to undue hazard by reason of his infirmities The best safeguard against accidents is an alert mind in a virile body, on the other hand, the sure preliminary to accidents is an exhausted, devitalized human machine

In a diversified business the man seeking employment will represent every possible variety of human activity, from the illiterate foreigner who applies as a laborer to the highly trained engineer and accountant For the particular department or bureau that is applied to, certain characteristics of mind and body are required The applicant himself, by a process of elimination, places himself in a particular group when he applies to a specific department for employment It is true he may be mistaken in his estimate of his ability, but we must at least recognize that he has specialized in his own case This type of man to my mind is highly desirable, because in all but the lowest types of labor, where the bare necessities of life force the man into activity, we have the elementary idea of fitness expressed

The necessity of a preliminary examination of applicants for employment would seem to admit of no serious debate Before the Milwaukee Electric Railway & Light Co organized the Employees' Mutual Benefit Association no one was examined prior to employment excepting those who were to be employed in the operating department of the company The advantage of a medical examination was obvious

Had it not been for the industrial depression following the outbreak of the European war, it is altogether probable that these results would not have been attained As men, one after the other, left their positions, the positions were not refilled, and the working force was reduced to the minimum For months little change occurred in the personnel and a marked change occurred in the accident experience in every department An improvement was also noted in the general health of the men

Some idea of the extent of the accident reduction, involving not only accidents in the industry itself, but accidents to the public who rode on the cars or were brought in contact with them, may be had from the statement that in the year 1915 the cost for injuries and damages was nearly $100,000 less than in the preceding year In the year 1915, also, the average sickness per man per year was reduced from eight days in 1913 to a little more than four days per man per year

We have in these combined results the summary of two factors (1) a campaign of education, both within and without the company for the prevention of accidents and (2) the result of a careful preliminary examination of employees, as well as a maintained high level of health incident to a very close supervision of the general health, by dividing the men employed into groups, in which they could be daily observed and in which the relief from the lesser ills which lead to greater could be had without delay It may be argued that being a medical man I am looking through prejudiced spectacles and claim too much as the result of medical supervision On account of the difficulty of obtaining labor at any price and almost under any conditions at the opening of the work this spring, the company was forced to abandon temporarily its examination in common laborers Great stress had been brought on me as chief surgeon to relax the requirements in nearly every department The management, however, took the position that such excellent results had been obtained during the past two years that unless some unforeseen contingency arose which might temporarily force a further abandonment of examination, nothing should be done to relax the rule which had given us such a good showing in the year 1915

Preventive medicine has achieved a victory in convincing big business that medical science is an economic factor in conserving the health of those who are essential to the advancement of the business Any factor which promotes efficiency by maintaining a high level of general health will interest the business men who are at the head of modern industrial establishments, and the more broad-minded and far-seeing these managers are, the sooner will they come to recognize the importance of medical supervision of employees

I have been surprised at the results that have been obtained in our own company The action of the management in insisting on the continuance of the pre-employment medical examination at a time of great industrial activity, when men are at a premium, is to my mind an excellent endorsement of the things we are here striving to obtain We are not theorizing in this matter, and when we can show results which make for industrial efficiency, we have taken the first step toward raising the general health of the community at large How short sighted a business management must be which ignores facts like these The more difficult it becomes to obtain employment, the more desirable that employment will become The military establishment is founded on the theory of life employment of the physically fit for its officers Modern business must follow this example, and the railroads particularly are interested in the matter of training men to fill the positions higher up as these become vacant There are traditions in every business and every successful business has been true to its traditions We know the percentage of those who succumb after careful physical examination We therefore must meet the man who seeks employment with obstacles which put him to a severe test, and if he survives the test, we may look for returns on our investment in his employment

We have seen that the employer will have to look about him to find the man suitable for the work in hand We must assume that the head of a department has the best interest of his company at heart and will not employ a man who is manifestly incompetent or who by reason of manifest physical defects would cause undue hazard When labor is scarce and the management, because of the necessities of the business, holds the head of the department to an average, rather than to a high rate of pay, the temptation will become great to employ men who are physically below the average

We recognize that certain trades produce characteristic injuries to many who follow them and that in men working at a bench these deformities do not create a hazard nor do they lessen the efficiency of the individual I would not think that such men would be employed when others who are perfectly sound are available, excepting in case the man who had lost a portion of one or more fingers was a man highly skilled at his trade Among laborers, who for the most part are temporary employees, the loss of portions of the fingers, providing it did not interfere with the normal grip, could well be overlooked

In a large business undue influence is frequently brought to bear to obtain employment in going companies for relatives who frequently are derelicts A disposition to yield to these demands can bring forth nothing good They are not emergencies, as far as the company is concerned, and they should be employed only after the most careful investigation into their fitness

As an examiner of trainmen for many years I can bear testimony to the fact that men who have for a number of years worked for industrial companies and who from time to time have been laid off for lack of work have entered the service of our company with unbounded enthusiasm, because they were obtaining employment which would give them a fixed income In a going concern like ours this fact should not be lost sight of, for the man we are employing, it is fair to state, is receiving a greater benefit than we are obtaining in his employment This fact, in itself, by relieving the employee of worry about the support of his family, enables him to concentrate his mind on his work I know of no greater incentive to good and efficient service than the thought that your employment is permanent and that the officers of the company are interested in your personal welfare

That every business must make an analysis of its own conditions is illustrated by the following experience In the year 1914 in an effort to discover the cause of a loss in efficiency of trainmen, amounting to 15 per cent, because of alleged sickness, our company decided to place a medical man for a period varying from one half to one hour each day, excepting Sundays, in each of our car stations and large car shops It was hoped that by giving aid to men who reported sick, before the sickness became disabling, this percentage of lost efficiency might be materially reduced It was suspected also that there was a definite amount of malingering on the part of the younger employees, whose desire to get rid of their last pay check was an obsession with them At the same time it was feared that the men might feel that a censorship was being maintained, and before putting this into effect, the matter was submitted to the directors of the Employees' Mutual Benefit Association, who represented the trainmen and other workmen To our gratification it was received as intended, and immediately put into effect The beneficial effect of this personal contact between medical man and the employee was immediately noted

For the month of January, 1916, two years after the inauguration of this system in one of our largest stations with over 600 men, there were but 623 days of sickness I mention the month of January, 1916, because throughout the eastern portion of the United States in that month, as well as in December, 1915, we suffered from a severe epidemic of the grip Notwithstanding this, with thousands of cases in our city, only 623 days were lost through illness during the month by more than 600 men But we must not claim for medical supervision only the general good health of our trainmen The company has cooperated with us in the matter of better cleaning and ventilating of street-cars, the building of sanitary car stations and by increasing the average wages of its employees with the increase in the growth of the business This has enabled employees to live at home under far more sanitary and healthful conditions than were brought to my attention twenty years ago, when I first became associated with the company

In the general office building, where approximately 400 clerks and other employees are housed, spring water only is used, which is brought nearly twenty miles to the city from a spring owned and developed by the company in the famous Waukesha district

The more regular hours of duty brought about by a more intelligent study of schedules is also a large factor in health conservation, because these men work in the most inclement weather and under conditions frequently in which exposure to the elements becomes a positive menace

That any city railway employing a staff of surgeons can undertake large welfare activities for the betterment of the health of its employees, their wives and dependents at comparatively little expense is illustrated by the experience of the Milwaukee Electric Railway & Light Co during four years With a contribution of $6 per year per man for each member of the association, and an additional $6 per man per year contributed by the company itself, together with the voluntary services without pay of the officers and other employees of the company, in addition to paying $1 per day for 100 days of continuous sickness, and 50 cents per day thereafter for a second 100 days, and $300 for a death, the giving of all medical and surgical services free to its members, including the services of a welfare secretary and a visiting nurse, in a short period of four years the Employees Mutual Benefit Association has accumulated a reserve fund amounting to approximately $50,000

So great has been the reduction in the average days' disability per man per year, and so great is the confidence of the management that this ratio can and will be preserved by the effective organizations which we have, that in January, 1916, without further expense to the members of the Employees' Mutual Benefit Association the company increased its medical service so as to include the wives and dependents of all members This necessitated the increase of the medical force and added largely to the expense for medical supervision, but in a most comprehensive manner it has endeavored to relieve the financial burden of its employees for medical and surgical services to their dependents, and by the making of these services available it has encouraged health conservation, by enabling the employee to call the doctor with the early manifestations of disease, when for financial reasons he would otherwise delay the call

The importance of this service I have but to suggest to this gathering Would space permit, a summary of the work performed during the first five months of this year would be most interesting I hope, however, at some future time when the work is more advanced to present an analysis of this work, of which we have a complete record It embraces the entire field of medicine and surgery and offers to those who are members of our surgical and medical organization a most interesting and instructive clinic There are exceptions to all rules and we note an exception to this medical service We do not do obstetrics and we do not treat the eye and ear We do, however, remove tonsils and adenoids

May I close this paper with a brief statement of the activities which as a corollary have come as a result of the organization of an Employees' Mutual Benefit Association, which has served as a melting pot into which have been poured the burdens of the employer as well as those of the employee, and out of which has come a record of health, happiness and prosperity which I do not hesitate to say, because I have looked into the matter thoroughly, will not be found in any other similar or large corporation in any part of our country?

We have a savings and loan association, additional life insurance, sick and accident insurance, a provident loan fund, where money can be had without interest, old age pensions, a women's auxiliary, indoor baseball, bowling, outdoor baseball, a band, a dramatic club, and all the auxiliaries which go to make up healthful recreation and promote happiness

It is the combined result of these various activities, which cements together the body of employees and holds them to their work, improving the condition of their health and teaching them the wise practice of economy

In the words of our welfare secretary

> In the work of caring for those who are sick the women's auxiliary which was organized during the past year, has proved extremely beneficial and is unique There are innumerable cases in which the regular benefit provided by the Employees' Mutual Benefit Association does not completely meet the requirements of the case When the mother of a family of small children is sick for a long period of time, it is a great relief to have the friendly services of members of the women's auxiliary, who step in and perform some of the household duties, taking from the mind of the patient much worry, and making the conditions most favorable for a speedy recovery In cases in which a mother must be removed to a hospital the care of small children becomes imperative, and if there is no relative who can step in to perform this duty, members of the women's auxiliary have very generously assisted to solve the problem This organization has also provided baby outfits for needy infants, when proper provision has not been made for the new arrival in the way of clothing and a number of poor families have been provided with Christmas cheer through this same organization
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> Beginning in 1912 with the Employees' Mutual Benefit Association, which was organized primarily to create, manage and distribute a fund to provide free medical assistance for members unable to work because of sickness or because of accident, when not within and subject to the provisions of the Workmen's Compensation Act, the association has become a most efficient machine for conserving the health of those who work for this company, as well as by caring for their dependents whenever disease or accident necessitates medical or surgical aid We have seen this association expand far beyond the limitation contemplated as its field of operation when it was first organized Its greatest field of usefulness has not been the payment of sick benefits or death claims, but rather the conservation of the health of its members Through the opening of doctors' offices at places of employment, it has been possible to reduce the amount of time lost on account of sickness by fully 40 per cent, making a total annual saving of something more than 10,000 work days

Once a year, divided into two days of fun and recreation, 12,000 people, including employees, their wives and families have a picnic with a 20-mile trolley ride

The electric industry today is attracting to itself a better and more educated class of men, because the requirements of the business with its diversified interests demands a high degree of intelligence In a large corporation it is possible to have a feeling of intimate relationship, and the medical man perhaps above all others comes closer to bringing about this happy condition We feel in Milwaukee that few corporations will be found whose gifts to their employees in the matter of health are so comprehensive and far reaching

The very best that industrial life holds for any individual under ideal conditions is employment by which he may earn a living for himself and his family, in work that is at once congenial to himself and useful to his fellow men, and that gives him an opportunity to rise to higher places of responsibility, that provides him an income sufficient to permit of his putting aside a surplus large enough to care for him, both in sickness and in old age, and that permits his work to be wholesomely interspersed with periods of rest and recreation

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BAD TEETH AND THEIR EFFECT ON THE LABORING MAN'S EFFICIENCY *

CARL E SMITH, D D S
AKRON, OHIO

Efficiency from a health standpoint is difficult to determine We know, for instance, that if the water supply of a community is pure, the community is saved economic loss from typhoid, the same can be said of the milk supply and of all the precautions necessary to keep a community in health

This is true from a dental standpoint If we teach a large body of people mouth hygiene we cannot say how much better their health will be, or how much we have saved them through the prevention of mouth and systemic diseases

In the past sixteen months I have made 30,000 mouth examinations, for 17,000 Americans and 13,000 foreigners Of this number, 96 per cent are in need of dental service, only 4 per cent have clean, healthy mouths, 9 per cent are without cavities and could be made healthy by a thorough cleaning, the balance have all the pathologic conditions known to dentistry, pyorrhea pockets, decayed and abscessed teeth, mucous plaques with all the virulent bacteria ready to cause disease the moment there is a lowering of the resistance The danger from a dirty mouth is quite generally recognized, practically all contagious diseases being transmitted by the nose or mouth and the mouth is the more dangerous of the two In a mouth free from caries, but with deposits of calculi and mucous plaques, gingivitis develops, and because the gums are painful and bleed the man gives up mastication, and food passes to the stomach carrying pathogenic organisms The stomach cannot do double duty and in time disease results And so by teaching oral hygiene to the laboring man and he in turn carrying the idea to his family, we are cutting down disease, not only in the factory, but in the community

Suppose an epidemic of scarlet fever breaks out in a city The health authorities find these cases along a certain milk route, and they look up the farms on which this milk is produced and find a case of scarlet fever I have never heard a satisfactory explanation of how that first case started, apparently spontaneously Could it not be a case of lowered vital resistance from some cause and a dirty mouth, in which the germs of scarlet fever predominate? Whether this be true or not, the teaching of oral hygiene to the laboring man is important if it does nothing more than prevent caries, pyorrhea, and other mouth diseases

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* Read before the Section on Preventive Medicine and Public Health at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June, 1916

Now in 30,000 mouths we find about 60,000 cavities, and I intend to show what one cavity means to the average laboring man First, there is the slight opening of the interdental space, food packs into the space, irritating the gum Quite naturally he gives up mastication on that side of the mouth, caries progresses until the pulp is exposed, the tooth aches, and he goes home from work, often purchasing a bottle of whisky on the way I have had cases in which the patients have admitted spending their last cent for whisky and had to borrow money to go to the dentist

The pulp in the tooth may die in twenty-four hours, or it may stop aching, only to start again in a few days If the pulp dies, in a period of time we have the acute alveolar abscess and at last in desperation he goes to the dentist and has the tooth extracted During this period of time, due to disuse, quantities of filth have collected over the other teeth on that side of the mouth, caries has started in the tooth next to the one extracted, and within a few months he again goes through with the same experience By this time the other teeth have become decalcified, and within a comparatively short time he loses every tooth on that side of the mouth, and it is easy to understand this man could not be marked 100 per cent in efficiency during this period If we admit the teeth to be necessary to mastication and digestion, we know that the employee cannot enjoy the good health he would have had, had we been able to prevent that first cavity or at least to persuade him to have dental service before it was too late

In 30,000 mouths we find about 18,000 extractions necessary, and experience shows these teeth to be practically all abscessed This is a difficult problem in efficiency, especially so if the findings of the research commission of the National Dental Association in regard to the relation of infections of the mouth to general systemic disorders prove only part truth, but the indications are at the present time that these apparently unimportant foci of infection are the cause of many disorders

The average dentist knows little at the present time regarding the effect of these foci of infection If it is arthritis, stomach ulcer, heart lesions, pernicious anemia or any of the nervous diseases of a neuralgic type, the medical man is consulted If it is true that these foci of infection are causing these obscure diseases, it is time for the dentist to learn more of medicine, so that he may hold intelligent consultation with the physician, and the physician should seek the consultation of intelligent dentists One case along this line I wish to report After working for the company for six years this man laid off in November, 1913, to have a mastoid operation In July, 1915, he applied for reemployment Physical examination showed ankylosis of the knee and poor physical condition The mouth examination showed a very bad case of pyorrhea and several abscessed teeth His mouth may not have been the cause of his trouble, but the surgeon overlooked the possible cause, and the patient should have been sent to a dentist Had this been done, he might at this time be an efficient workman On the other hand, there are no doubt a good many of your patients whom you are burying on account of poor dentistry

I wish to report a case which to my mind shows how bacteria are carried by the blood stream A man injures a tooth in such a way as to kill the pulp After a period of time an alveolar abscess develops I have seen a number of these cases without a cavity in the tooth, no pyorrhea, and gums in a healthy condition There is only one way that infection could occur The bacteria were carried there by the blood stream from some focus of infection If they are carried to the teeth, it follows naturally that they are carried from these blind alveolar abscesses

If a man presents himself to our physical examiners with a suppurating toe-nail or infected finger nail, he is promptly rejected as being unfit for employment, likewise if he has an acute alveolar abscess with a swollen jaw he is rejected until the cause has been removed and the swelling subsides, but we cannot reject these men with 18,000 necessary extractions, knowing or at least suspecting the effect on their efficiency, if we did, it would mean the rejection of 25 per cent of all people applying for employment The best we can do is to advise the removal of these teeth In 30,000 mouths we find 40,000 teeth extracted, and that tells its own story, the inability to properly masticate the food, and you medical men know better than I the results of improper digestion which are bound to follow

One way we can estimate the loss of efficiency due directly to toothache is by watching the piece-worker Very often a man engaged in piece-work will say "Doctor, this tooth has ached for a week" The loss of money to these men runs from $3 to $7 for the week Men suffering for a day report losses of from 35 cents to $1 50

In 30,000 mouths we find 60,000 cavities and 18,000 extractions necessary, 78,000 in all If each one causes an average loss, through waste of time and cost of repair, of $2, it means a cost of $156,000 In New York City last year 67,000 children failed to be promoted to higher grades because of absence, 80 per cent of which can be laid to defective teeth, and it costs New York $1,037,696 to duplicate a year's schooling to these absentees These same children in a few years will be employed by our industrial concerns and a large percentage will fail of promotion on account of poor health due to bad mouth conditions

What can be done by way of prevention? The first thing necessary is the cooperation of the medical man, he is the first to see the pregnant woman, he should instruct her regarding what to eat to supply the necessary mineral salts to build bone and teeth, and send her to the dentist for instruction regarding the care of her mouth The dentist should instruct her regarding the mouth of her child when it arrives, also regarding the care of that mouth after the teeth begin to erupt It is possible to take a child at this time and prevent the formation of cavities, and it is most important that this should be done

We find at the present time a great many dental clinics in the public schools This is a good work, but the child is 6 years of age when he starts school and a great deal of damage has already occurred, so the work of the clinics is largely reparative, but still it is not too late to teach the children oral hygiene They should be taught how to live, which is vastly more important than certain subjects which have been a part of the school curriculum in past years If this were done, they would leave school and enter our industrial institutions better equipped to earn a livelihood

During the past two years dental clinics have been established in a number of large manufacturing concerns These clinics are operated along different lines, but all with the same general idea in view, that of cooperating with the medical departments in bringing about more satisfactory health conditions

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS MOCK, CLARK, LEMON AND SMITH

Dr Joseph C Bloodgood, Baltimore I am interested in this question from an academic standpoint, from the standpoint of the teacher We must apply our knowledge of first aid in the introduction to the industrial worker of the larger problem of prevention and the care of his health and efficiency The industrial worker will see quickly a diminution in the long period of disability and a diminution in the number of cases of loss of function from bad results, not of bad surgery, but of the late application of good surgery It is important for the industrial surgeons to know the established rules of surgery today If they wish to influence the laborer their results must be such that there will be no question in the minds of the ones who are helped that it is for their good Along with that, in industrial surgery as in preventive medicine, there must be something else, otherwise our interest will lag, and our efficiency will decrease, and that something else is a research for the solving of the unsettled problems Not one single bit of progress has been made in the treatment of infected wounds for a quarter of a century Surgery of infected wounds was developed twenty-five years ago, but as soon as surgical bacteriology developed clean surgery, we lost interest in it For sixteen years there has been no research on the treatment of infections The development in medical bacteriology led to the protection against typhoid fever Why? Because there was an immediate need for protection We have not any typhus now, but there are some infections that might creep into this country in the future and those are the ones that you should study so that we will be prepared

Dr J W Schereschewsky, Washington, D C I would like to emphasize the wonderful educational effect which is bound to result from the personal relation of the industrial physician to the worker Everybody is agreed that community sanitation, as represented by state and municipal boards of health, has proceeded almost as far as it can go, and the reason for this is that we cannot influence the people, individually, by community sanitation The great importance of personal hygiene in enabling the individual to reach the maximum of his efficiency is being demonstrated from day to day by the data which are being collected It is evident, therefore, if we want to make substantial advances toward our ideals, we must be able to impress on the individual the vital necessity for the care of the body, besides securing the maintenance of a sanitary environment around him all the time, not only in the shop, but in the home

The development of industrial medicine and surgery offers advantages to educate the individual in these particulars which cannot be excelled in any other field The workers, surrounded in the workshop by ideal sanitary conditions, are able to contrast those conditions with the conditions which obtain in their homes In this way they are unconsciously led to desire a higher standard of environment The personal relation of the physician to the worker in the workshop is a means by which the principles of personal hygiene may be so inculcated that they are applied and not regarded as fads of the medical profession, for every day around the worker there will be shining examples of the results of the application of principles of personal hygiene In this way we see that when this science of industrial medicine and surgery is properly developed, we will have at our command a means of popular education which can hardly be excelled There are about 30,000,000 industrial workers in the United States, very nearly one third of the population Probably 90 per cent of the population should be influenced by these means of personal education I think the industrial physician and surgeon has it in his power to influence, more than any other body of men in this country, the consistent development and progress in this country toward ideals of sanitation

Dr W H Price, Detroit If I heard right, Dr Clark tells us that the examinations he has made take, on an average, ten minutes I disagree with Dr Clark From an experience of 15,000 medical examinations, I know that it takes much longer, and I am afraid we do not make as careful an examination as Dr Clark has made I know that last year Dr Fiske reported they took an average of twenty minutes A number of physicians disputed that such a thing as a thorough medical examination in twenty minutes was possible A blood pressure examination will take a minimum of five minutes, and then sometimes it is not accurate and we have to take it two or three times I know that Dr Schereschewsky and his assistant spent forty minutes or forty-five minutes on an average in 30,000 examinations they made in cooperation with our board, so that I believe that ten minutes is rather a short time This brings me again to the question of the absolute unworthiness of statistics based on a nonstandardized examination If one examines in five minutes, another in ten, another in forty-five, etc, and all those figures come together, how can we compare the results? I believe that nothing better can be done by this section than to appoint a Committee on Standardization of Industrial Medical Examinations, so that in the future we should be able to compare those examinations

Dr Frederick L Van Sickle, Olyphant, Pa I feel that we have not ventilated the subject to the people on whom we must depend to carry out the very admirable suggestions that have been made by Dr Mock and Dr Clark I practice in the anthracite coal fields of Pennsylvania, where we have a combination of traumatism and the introduction of foreign bodies Wounds are made at quite a distance from the emergency hospital, so that the ideal measures that have been suggested by Dr Mock and Dr Clark are not possible My point particularly is efficiency insurance in medical and surgical work as applied to social and the new laws that are coming into existence in the United States Thirty three states have workmen's compensation laws, and in five states health insurance measures will be introduced shortly Some of the ideas introduced by Dr Mock are Utopian, but it is necessary as a step in the progress of this work to have some educational propaganda made by which the men who are most vitally interested, that is, the local practitioner who receives the appointment for this kind of work, be brought up to some particular standard of efficiency The medical examination is also made in a very superficial manner It is evident that we must have some method of standardization of examinations of the workman I feel grateful that the questions of social insurance have been taken up by the American Medical Association and it has seen fit to confirm the report of the Reference Committee on Legislation and Political Action which places the committee of the Judicial Council of the Association (which was appointed last year on social health and insurance), in a way to act, and it has been recommended to the various states that they appoint a like committee from whom this information can be obtained

Dr D B Lowe, Akron, Ohio Dr Clark made a plea for a complete examination A complete examination to me means a stripped examination In the organization which I represent, there were 12,000 examinations made on employees at the time physical examinations were instituted These 12,000 examinations were made by part-time physicians who spent practically only two hours a day at the shop In the 12,000 there is not one case of tuberculosis reported The urinalysis may or may not be necessary in certain cases Blood pressure may prove otherwise on general findings I have come to the conclusion that it is best for all our examiners to make a complete examination, examine the urine and take blood pressures, and sometimes even examine blood All of us lack sufficient training, however, if we do some laboratory work along with the physical examinations, it will tend to train us I do not cast any reflections on the men we have in our employ because they must be graduates of a Class A school and have at least a year's training in a recognized hospital with six months' service on the medical side Running through 150 men a day, an average of about thirty-six to the examiner, with a large organization calling for men that must be put to work, it is impossible at the present time to select men for the work It may be possible in a smaller organization, but we cannot do it As to the rejection for hernia, the laws of various states differ In Ohio we do not have to reject every hernia case, if the company will stand behind us on the question of finance We made arbitrarily three classes those who have a small hernia, those who have a larger hernia, and those who have a complete hernia, if I may put it in that way, the first class without a truss, the second class with a truss, and the third class we reject In two months we took 125 men Seventy-five per cent of those who applied with hernia we put into the shop on any kind of work Some are doing very heavy work Of those eighty-six remained with us at the end of two months when this material was taken We have had one whose hernia came down, that required a $5 truss It costs our company $35 a man to train their men If they are in our employ at the end of six months we will not operate on them ourselves free of charge, but we will operate on them and the fee will be made according to the family conditions, as to whether the man is in debt, as to whether he is paying for his home, etc Maybe the company will, if necessary, underwrite those cases and pay the surgeon and the hospital bill, and the money will be deducted from the man's salary at about 10 per cent of his pay on each pay day It makes, probably, an average of about $5 a month, and it takes a man in the neighborhood of fourteen months to pay the whole bill In the intermediate cases out of the twenty-five we have operated on under this plan it has cost the company, due to those who have left the company and refused to pay, and various other reasons, $14 a man It cost $35 to put them in, $14 to keep them, so we consider it is quite a good investment As to the time required in making a physical examination, since the first of November on stripped examinations made by full time physicians we have examined 12 000 men Our turn-over is quite large Of the 12,000 who passed into the shop, four have developed tuberculosis since that time

Dr C G Farnum, Peoria, Ill Some one said that Dr Mock's paper approaches the Utopian Possibly, it does, but it is absolutely practical There is not one single thing that Dr Mock suggested that cannot be done, and be done easily One of the reasons it is easy is because he stands so strongly for personal contact with the men You cannot be doctors alone in this work, you must be sociologists and you will be accused occasionally of being Socialists There is not one thing that is more valuable in the work that Dr Mock has done than his personal contact with the men When these men come to know that they have the privilege and the opportunity to come in and talk with you they will do so not about their hernia, not about their scratched fingers, but with regard to their habits of eating and drinking and sleeping and housing and sanitation and all of those things that come into the daily routine of a man's life I want to speak particularly of physical examination I do not care how many legs or hands a man has, if I can put him where I want him in the shop And, if there is any man who is falling short in the work of placing his men he has taken but a part of one small step in this work because that is the most valuable thing to the company, and it is the biggest thing to the man People are writing me constantly 'What is your standard of rejections' and I tell them, 'We are not running an athletic club nor turnverein, we are running a manufacturing institution If a man has but one leg, I put him in a one-legged man s job And if a man has one arm I do the same thing When it comes to the matter of eyes, the problem is bigger It does not matter about the condition of a man if you tell him what is wrong and get him headed right and put him at work that he can do and do safely That is what he wants, and that is what he is there *for*, and that is our obligation to him and to the company There is another thing that has not been brought out in the discussions and that is the matter of age, and physical condition and their relation to responsibility and reliability Where is our labor turn over coming from? We have worked out some statistics that show that our physically perfect men and there were not very many of them, were the worst aggregation we have, from the standpoint of labor turn-over This matter of fitting men to jobs is wonderfully important and the matter of coming intimately in contact with the men is also important Your *position* in your de[illegible] must be absolute, if it is not, then your work is not going to carry The department of employment, the department of safety and the medical or sanitary departments are so intricately interwoven, that if you try to separate them, you are going to curtail the most valuable portion of the work of each one of them

Dr Charles J Hastings, Toronto, Ont It seems to me that we have been "found asleep at the switch" We have been doing many things that we ought not to have done, and we have left undone many things which we ought to have done, and we are just waking up to it now I was glad to hear the former speaker refer to the social problems in public health administration We realize, however, that no organization of public health administration is at all complete without a division of social service and without a division of industrial hygiene Public health administration at the present time stands for race betterment, for the developing of a fitter race The control of communicable diseases only constitutes a fractional part of public health administration

Dr Eugene L Fisk, New York The time consumed by the Life Extension Institute in making physical examinations has been mentioned It should be explained that the history taking is done in advance of that examination History blanks are filled out by the employee in advance of examination, so that a lot of time is saved Then the examiner concentrates on the physical examination, and he takes from twenty minutes to half an hour, depending on his training It is important that we should standardize this work A very valuable examination can be made in ten minutes, even in five minutes No reflection whatever should be cast on the great value of the work done by Dr Clark His examination was a most valuable one, it brought out most interesting things, but I think that perhaps in the same space of time, other things could be added and a complete physical examination made For example, the lymphatics are mentioned, the heart, and various organs of the body, but no mention is made of the arterial system or the examination of the radicals and brachials An examination of these structures and even the eyegrounds, with modern instruments could be made very quickly, and surely there is no more important part of a man's body than his arteries There is one fact which is brought out in our service, and that is the unreliability of blood pressure as a guide to the condition of the arterial system There is a common impression that if a man's blood pressure is normal, his arteries are normal The majority of individuals with definitely thickened arteries have either normal blood pressure or low blood pressure I cannot speak too strongly of the possibility of this work in a sociologic way, of the opportunities to teach these men how to live Like Dr Farnum, I have been out among these people and I have put my ear down to their naked sweaty chests I have tried to carry to them this philosophy of right living They respond and they respond more readily and more intelligently than even men in the higher walks of life who are supposed to have more intelligence They are not so cynical or so skeptical and you can explain to them the fundamental principle that the human machine needs inspection and care just the same as the inanimate machines that are under their charge

Dr C A Lauffer Wilkinsburg, Pa For eight years I have been associated with this work in the capacity of medical director The Westinghouse Electric and Manufacturing Company has a works dispensary known as the Relief Department, in the East Pittsburgh plant We are taking care of about 450 patients a day We treat an average of 110 new traumatic cases each day I have been extremely interested in these papers because their solutions correspond very closely with the way we have met these same conditions About one third of our traumatic cases are eye cases, another third fingers, the balance are miscellaneous It might be well to define under five heads the different types of work which come to the surgeon in individual practice

First of all is the examination of new employees We have recently entered this field We prepared a list of fourteen different classes of conditions in which we think we should reject prospective employees However, we have taken care of all men, who have been in the employ of the company previous to the inauguration of the physical examinations

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Dr Fredrick L Van Sickle, Olyphant, Pa I feel that we have not ventilated the subject to the people on whom we must depend to carry out the very admirable suggestions that have been made by Dr Mock and Dr Clark I practice in the anthracite coal fields of Pennsylvania, where we have a combination of traumatism and the introduction of foreign bodies Wounds are made at quite a distance from the emergency hospital, so that the ideal measures that have been suggested by Dr Mock and Dr Clark are not possible My point particularly is efficiency insurance in medical and surgical work as applied to social and the new laws that are coming into existence in the United States Thirty-three states have workmen's compensation laws, and in five states health insurance measures will be introduced shortly Some of the ideas introduced by Dr Mock are Utopian, but it is necessary as a step in the progress of this work to have some educational propaganda made by which the men who are most vitally interested, that is, the local practitioner who receives the appointment for this kind of work, be brought up to some particular standard of efficiency The medical examination is also made in a very superficial manner It is evident that we must have some method of standardization of examinations of the workman I feel grateful that the questions of social insurance have been taken up by the American Medical Association and it has seen fit to confirm the report of the Reference Committee on Legislation and Political Action which places the committee of the Judicial Council of the Association (which was appointed last year on social health and insurance), in a way to act, and it has been recommended to the various states that they appoint a like committee from whom this information can be obtained

Dr D B Lowe, Akron, Ohio Dr Clark made a plea for a complete examination A complete examination to me means a stripped examination In the organization which I represent, there were 12,000 examinations made on employees at the time physical examinations were instituted These 12,000 examinations were made by part-time physicians who spent practically only two hours a day at the shop In the 12,000 there is not one case of tuberculosis reported The urinalysis may or may not be necessary in certain cases Blood pressure may prove otherwise on general findings I have come to the conclusion that it is best for all our examiners to make a complete examination, examine the urine and take blood pressures, and sometimes even examine blood All of us lack sufficient training, however, if we do some laboratory work along with the physical examinations, it will tend to train us I do not cast any reflections on the men we have in our employ because they must be graduates of a Class A school and have at least a year's training in a recognized hospital with six months' service on the medical side Running through 150 men a day, an average of about thirty-six to the examiner, with a large organization calling for men that must be put to work, it is impossible at the present time to select men for the work It may be possible in a smaller organization, but we cannot do it As to the rejection for hernia, the laws of various states differ In Ohio we do not have to reject every hernia case, if the company will stand behind us on the question of finance We made arbitrarily three classes those who have a small hernia, those who have a larger hernia, and those who have a complete hernia, if I may put it in that way, the first class without a truss, the second class with a truss and the third class we reject In two months we took 125 men Seventy-five per cent of those who applied with hernia we put into the shop, on any kind of work Some are doing very heavy work Of those eighty-six remained with us at the end of two months when this material was taken We have had one whose hernia came down, that required a $5 truss It costs our company $35 a man to train their men If they are in our employ at the end of six months we will not operate on them ourselves free of charge, but we will operate on them and the fee will be made according to the family conditions, as to whether the man is in debt, as to whether he is paying for his home, etc Maybe the company will, if necessary, underwrite those cases and pay the surgeon and the hospital bill, and the money will be deducted from the man's salary at about 10 per cent of his pay on each pay day It makes, probably, an average of about $5 a month, and it takes a man in the neighborhood of fourteen months to pay the whole bill In the intermediate cases, out of the twenty-five we have operated on under this plan it has cost the company, due to those who have left the company and refused to pay, and various other reasons, $14 a man It cost $35 to put them in, $14 to keep them, so we consider it is quite a good investment As to the time required in making a physical examination, since the first of November on stripped examinations made by full time physicians we have examined 12,000 men Our turn-over is quite large Of the 12,000 who passed into the shop, four have developed tuberculosis since that time

DR C G FARNUM, Peoria, Ill Some one said that Dr Mock's paper approaches the Utopian Possibly, it does, but it is absolutely practical There is not one single thing that Dr Mock suggested that cannot be done, and be done easily One of the reasons it is easy is because he stands so strongly for personal contact with the men You cannot be doctors alone in this work, you must be sociologists and you will be accused occasionally of being Socialists There is not one thing that is more valuable in the work that Dr Mock has done than his personal contact with the men When these men come to know that they have the privilege and the opportunity to come in and talk with you they will do so not about their hernia, not about their scratched fingers, but with regard to their habits of eating and drinking and sleeping and housing and sanitation and all of those things that come into the daily routine of a man's life. I want to speak particularly of physical examination I do not care how many legs or hands a man has, if I can put him where I want him in the shop And, if there is any man who is falling short in the work of placing his men, he has taken but a part of one small step in this work because that is the most valuable thing to the company, and it is the biggest thing to the man People are writing me constantly "What is your standard of rejections," and I tell them "We are not running an athletic club nor turnverein, we are running a manufacturing institution " If a man has but one leg, I put him in a one-legged man's job And if a man has one arm, I do the same thing When it comes to the matter of eyes the problem is bigger It does not matter about the condition of a man if you tell him what is wrong and get him headed right and put him at work that he can do and do safely That is what he wants and that is what he is there for and that is our obligation to him and to the company There is another thing that has not been brought out in the discussions and that is the matter of age, and physical condition and their relation to responsibility and reliability Where is our labor turn-over coming from? We have worked out some statistics that show that our physically perfect men and there were not very many of them, were the worst aggregation we have, from the standpoint of labor turn-over This matter of fitting men to jobs is wonderfully important and the matter of coming intimately in contact with the men is also important. Your position in your department [illegible] must be absolute, if it is not, then your work is not going to carry The department of employment, the department of safety and the medical or sanitary departments are so intricately interwoven, that if you try to separate them, you are going to curtail the most valuable portion of the work of each one of them

DR CHARLES J HASTINGS, Toronto, Ont It seems to me that we have been "found asleep at the switch" We have been doing many things that we ought not to have done, and we have left undone many things which we ought to have done, and we are just waking up to it now I was glad to hear the former speaker refer to the social problems in public health administration We realize, however, that no organization of public health administration is at all complete without a division of social service and without a division of industrial hygiene Public health administration at the present time stands for race betterment, for the developing of a fitter race The control of communicable diseases only constitutes a fractional part of public health administration

DR EUGENE L FISK, New York The time consumed by the Life Extension Institute in making physical examinations has been mentioned It should be explained that the history taking is done in advance of that examination History blanks are filled out by the employee in advance of examination, so that a lot of time is saved Then the examiner concentrates on the physical examination, and he takes from twenty minutes to half an hour, depending on his training It is important that we should standardize this work A very valuable examination can be made in ten minutes, even in five minutes No reflection whatever should be cast on the great value of the work done by Dr Clark His examination was a most valuable one, it brought out most interesting things, but I think that perhaps in the same space of time other things could be added and a complete physical examination made For example, the lymphatics are mentioned, the heart, and various organs of the body, but no mention is made of the arterial system or the examination of the radicals and brachials An examination of these structures, and even the eye-grounds, with modern instruments could be made very quickly, and surely there is no more important part of a man's body than his arteries There is one fact which is brought out in our service, and that is the unreliability of blood pressure as a guide to the condition of the arterial system There is a common impression that if a man's blood pressure is normal, his arteries are normal The majority of individuals with definitely thickened arteries have either normal blood pressure or low blood pressure I cannot speak too strongly of the possibility of this work in a sociologic way, of the opportunities to teach these men how to live Like Dr Farnum I have been out among these people and I have put my ear down to their naked sweaty chests I have tried to carry to them this philosophy of right living They respond, and they respond more readily and more intelligently than even men in the higher walks of life who are supposed to have more intelligence They are not so cynical or so skeptical and you can explain to them the fundamental principle that the human machine needs inspection and care just the same as the inanimate machines that are under their charge

DR C A LAUFFER Wilkinsburg, Pa For eight years I have been associated with this work in the capacity of medical director The Westinghouse Electric and Manufacturing Company has a works dispensary known as the Relief Department, in the East Pittsburgh plant We are taking care of about 450 patients a day We treat an average of 110 new traumatic cases each day I have been extremely interested in these papers because their solutions correspond very closely with the way we have met these same conditions About one third of our traumatic cases are eye cases, another third fingers, the balance are miscellaneous It might be well to define under five heads the different types of work which come to the surgeon in individual practice

First of all is the examination of new employees We have recently entered this field We prepared a list of fourteen different classes of conditions in which we think we should reject prospective employees However, we have taken care of all men, who have been in the employ of the company previous to the inauguration of the physical examinations

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The second type of work is surgical cases, chiefly accidents occurring within the plant We get patients immediately after the accident We think it is a misfortune to have first aid work preceding the work of the physician We have surgeons on duty twenty-four hours each day, and we instruct injured men to come to us immediately The work of the first aid man is generally mischievous, we want to have the patient immediately, while his wound is still bleeding The third type of work we have to do relates to sickness All employees who are not feeling well are encouraged to come to us We give them emergency medical treatment We send home those employees whose temperature is elevated, also those whose temperature is subnormal The fourth service of our department is a "diagnostic clearing house" Many of these men, who may be sent to hospitals for herniotomies, or various other operative conditions, are given advice as to the proper procedure They are referred to specialists in various lines of work The fifth line of our work is with relation to our relief fund Employees of our company may pay a certain proportion of their wages to secure disability benefits for periods of disability arising from accidents occurring at home and in consequence of sickness We are paying about $15,000 a month out of the relief fund, and it requires much labor to review the diagnoses that are presented to us, and to pass on the statements that are brought to us by the employees, and the certificates which are presented from their attending physicians Proof of claims for compensation insurance for periods of disability resulting from accidents occurring within the plant must also be adjusted These are paid out of the company's compensation fund The field of the surgeon in industrial practice is a wide one We have entirely too little available time for the stupendous work at our disposal

Dr W H Lipman, Chicago Regarding the time for the examination, I believe it would be well to establish a standard for general work, that is, have a standard that can be applied generally, as to what to look for But I do not believe it is possible to say how much time we should take and how much time we should not take to examine a man We might want to take forty-five minutes to examine one man and two minutes and a half to examine another When a man or woman comes in looking anemic, or with a flushed face, one would naturally make a longer examination I have been doing this work in Chicago for one of the large packing houses for eleven years, at the beginning very superficially, and I am free to admit very inefficiently, but we have gradually developed and finally, after studying the methods which have been in use all over the country and their results, we reject men for just one cause, and nothing else, and that is contagious diseases When a man presents a case of a contagious disease of short duration, we ask him to call again in a reasonable time, and if he has been cured, or is well, we will accept him, but outside of that we will reject for absolutely nothing We find a man with a certain defect, we put him to work Later on we advise him what to do for himself Industrial medicine and surgery is perhaps attracting more attention than anything else Some of the papers and some of the discussions have dwelt on the advisability of telling the employer what a fine investment this medical work among their employees is Some have gone so far as to figure out in dollars and cents just how much money they are going to save by saving the lives of their employees, by reducing pain, by prolonging life and so on I believe that is a great mistake In the first place, it is wrong, because nobody can tell us how much a human life is worth, or how much pain and suffering cost And, second, I believe that the average employer is — if I may use that expression — a mixed culture It is true he has a very great affinity for the dollar, but I believe that he is a man after all, and I think when he comes to the final issue he is more easily approached when you appeal to his humanity, rather than to his love for the dollar Furthermore, if you insist on showing him just how much money he is going to make, the time will come when you will not be able to do that, and then if you depend on your work to convince him that he is going to make money, you will lose out in the end

Dr Harry E Mock, Chicago As to the length of time these physical examinations should take, ten minutes is entirely too short a time for the ordinary physical examination where the history, temperature, pulse, blood pressure, height and weight, eye test, etc, must be taken by the examining physician But the men actually doing this work are engaged by great industries who demand that their employees be returned to work in as short a time as possible, therefore, it is necessary for the company surgeon to work out very efficient systems, in order to make this examination as rapidly as possible We have nurses who do the preliminary work of eye test, ear test, pulse, temperature, weight, etc, and then the employee enters a dressing room, strips, and comes before a doctor for his examination This routine examination can be done in from ten to twelve minutes If a man is found with a very badly diseased condition, he is sent to the chief of staff for further study, and it may take an hour to complete this examination But any one engaging in this work will find ten or twelve minutes sufficient time for the routine examinations The second point is that these examinations are not made for the purpose of throwing out those too old to work, those with slightly diseased conditions, and those with chronic diseases that interfere with only certain types of work, namely heavy work They are made for the protection of the old working force against contagious diseases and for the protection of the applicant himself if he has a disease that makes work of any kind detrimental to him Every industry should assume its share of responsibility toward society until the state takes up that burden We have no right to reject old men, or any one else except those mentioned There are just two things to reject on, contagious disease that affects your working force and a very bad heart, or blindness, or some condition that makes it impossible for that man to work for his own good

Dr W Irving Clark, Jr, Worcester, Mass The preciseness of my paper was to answer a great many questions which I have had written to me in the last two or three years on our work, and is simply an answer with regard to what we are doing, and how we are trying to do it We place all our men just as carefully as we can We would rather have a deaf and dumb man than anybody else They mind their business, and they never make any trouble We take all the one-armed men They are the finest fellows for work if they can do it, that I know of If we can find a job for a one-legged man, we will take him I think it was Dr Farnum who brought out the question of cooperation, the safety engineering department, the medical department, and the employment department should actively cooperate, they should be in one building and should form a separate department, with these three subdivisions Dr Fiske spoke about the completeness of examination and the time required I would rather take forty-five minutes to make an examination than ten But, what are you going to do when there are 100 men lined up, and the employment clerk says 'We will have to get these men through," and there are more behind them We must realize that our business is to get men into the factory and to keep them working if we are factory physicians We would like to be sociologists, but unfortunately, we have to work in a factory, and there are certain things in a factory that have to be recognized Time is one of the most important elements in factory work

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THE SANITATION OF PUBLIC MARKETS *

DONALD B ARMSTRONG, M D, M A, M S
Assistant Secretary, National Association for the Study and Prevention of Tuberculosis Executive Officer, Community Tuberculosis Experiment
NEW YORK

Out of an income of less than $1,000 a year, the average urban family of five in most large American cities has to spend from 40 to 50 per cent of their income for food Undoubtedly an important factor contributing to this large percentage is the cost of municipal food handling and distributing, as was indicated by a recent study in New York City, where it was ascertained that about 37 cents out of every consumer's dollar went for the cost of municipal food transportation Public markets are considered by many an essential factor in combating the high cost of foods resulting from the present individualistic methods of municipal food handling The past few years have seen many experiments along market lines, either under public, semipublic or private control, either temporary or permanent in character It would seem that the most effective results might be expected with the highest degree of municipal control, including a regulation of rents, or retail food prices and consequently of profits Obviously, if a public market is properly situated, it can effect still further economies to the consumer by the elimination of the cost of delivery and the loss resulting from the operation of the stores on a credit basis

The establishment of public markets, especially when of a temporary and experimental character, introduces into the community life many problems of intimate sanitary and hygienic importance, problems which the public market has in common with the retail store to a large extent Concentration, however, of retail business in certain areas, possibly under one roof, increases the magnitude of the problem and at the same time enhances the directness and simplicity with which a sanitary control can be established In any event, whether under private or public auspices, any municipality must meet the responsibility of establishing and maintaining adequate sanitary and hygienic regulations in connection with the city's food distributing system

Sanitary food control is of interest from several points of view In the first place, there are the representatives of the municipality, usually the health department officials, who have the responsibility of inspection and law enforcement Of great significance in this connection are the recent findings of health departments, perhaps especially the New York City department of health, to the effect that intelligent, educational inspection is tremendously more efficient, from the point of view of accomplishing results, than is any amount of uninstructive visiting, legal prosecutions and insignificant fines

Further, the dealer himself is intimately concerned in sanitary law compliance It is essential that he should be made to realize the economic importance of sanitary food protection and waste prevention, in addition to the health hazards of careless food infection

Finally, there is the consumer, the purchaser, who is interested in food protection and desires food protection, aroused to the necessity by motives of disease prevention, cleanliness, decency, and estheticism

From whatever point of view the problem is approached, however, those interested soon realize that the special problems of market sanitation are, in the main, three in number In the first place, because of the perishability of ordinary food products, and because of the risks of disease transmission, there are dangers of contamination and possible infection, by means of dust, dirt, flies and dirty fingers It is certainly conceivable that tuberculosis, typhoid fever and other diseases may be, and perhaps frequently are, transmitted in this way Further, there are the special dangers of decomposition, the rare development of genuine ptomains, the more frequent pathologic bacterial infections, etc Finally, there must be mentioned the comparatively insignificant hazards resulting from adulterated or preserved foods, a problem in fraud prevention largely of economic, rather than of sanitary, significance Such a classification does not, of course, include certain other possibilities, such as the presence of natural poisons, as in mushrooms, the presence of animal parasites, as in pork, the development of a specific poison, such as solanin in potato sprouts, and special individual idiosyncrasies, as pathologic reaction to egg protein It ignores entirely what would seem to be the most important food factor in health conservation, namely, proper dietary food selection, a factor of hygienic rather than of sanitary importance and one which is, therefore, not apropos at this point in the discussion

To confine the discussion largely to the sanitary aspects, it might, perhaps, for the sake of clearness, be best to adopt a rough classification of the major points in market sanitary control and to discuss these very briefly under the following headings

PRODUCTS AND THEIR CARE, LABORATORY CONTROL

Chemical Analyses—It is, of course, possible nowadays to find in most large cities adequate facilities for the chemical study of foods offered for sale in municipal markets, and therefore, more or less under municipal guarantee Such analyses should be made to detect illegal adulterants or preservatives and to insure protection against the sale of deteriorated or decomposed products

Bacteriologic Analyses—Routine procedures of this kind are, of course, essential if milk and dairy products are permitted to be handled in the market Bacteriologic analyses to detect contamination of foods from various sources may, from time to time, be worth while Consequently the necessity for municipal equipment to meet demands in this field should be recognized when market plans are being developed

Calorific Analyses—This is the type of analysis and check which cities will have to recognize in the future Eventually governmental authority will have to take the responsibility for food standardization, and if this standardization is to be on a rational basis, calorific values will have to be employed Further, if the purchaser is ever to be educated to the extent that she can buy her food supply on an intelligent food value basis, there will have to be mechanism for routine, calorific food analyses In the present state of development an equipment of this kind cannot, of course, be considerered a prerequisite to a market establishment At the same time, its need should be emphasized, so that in the future it may become an essential part of municipal market control Again, it must be pointed out that this is, of course, of hygienic rather than of sanitary importance

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* Read before the Section on Preventive Medicine and Public Health at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

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DR. W. H. LIPMAN, Chicago: Regarding the time for the examination, I believe it would be well to establish a standard for general work, that is, have a standard that can be applied generally, as to what to look for. But I do not believe it is possible to say how much time we should take and how much time we should not take to examine a man. We might want to take forty-five minutes to examine one man and two minutes and a half to examine another. When a man or woman comes in looking anemic, or with a flushed face, one would naturally make a longer examination. I have been doing this work in Chicago for one of the large packing houses for eleven years, at the beginning very superficially, and I am free to admit very inefficiently, but we have gradually developed and finally, after studying the methods which have been in use all over the country and their results, we reject men for just one cause, and nothing else, and that is contagious diseases. When a man presents a case of a contagious disease of short duration, we ask him to call again in a reasonable time, and if he has been cured, or is well, we will accept him, but outside of that we will reject for absolutely nothing. We find a man with a certain defect, we put him to work. Later on we advise him what to do for himself. Industrial medicine and surgery is perhaps attracting more attention than anything else. Some of the papers and some of the discussions have dwelt on the advisability of telling the employer what a fine investment this medical work among their employees is. Some have gone so far as to figure out in dollars and cents just how much money they are going to save by saving the lives of their employees, by reducing pain, by prolonging life and so on. I believe that is a great mistake. In the first place, it is wrong, because nobody can tell us how much a human life is worth, or how much pain and suffering cost. And, second, I believe that the average employer is — if I may use that expression — a mixed culture. It is true he has a very great affinity for the dollar, but I believe that he is a man after all, and I think when he comes to the final issue he is more easily approached when you appeal to his humanity, rather than to his love for the dollar. Furthermore, if you insist on showing him just how much money he is going to make, the time will come when you will not be able to do that, and then if you depend on your work to convince him that he is going to make money, you will lose out in the end.

DR. HARRY E. MOCK, Chicago: As to the length of time these physical examinations should take, ten minutes is entirely too short a time for the ordinary physical examination where the history, temperature, pulse, blood pressure, height and weight, eye test, etc., must be taken by the examining physician. But the men actually doing this work are engaged by great industries who demand that their employees be returned to work in as short a time as possible, therefore, it is necessary for the company surgeon to work out very efficient systems, in order to make this examination as rapidly as possible. We have nurses who do the preliminary work of eye test, ear test, pulse, temperature, weight, etc., and then the employee enters a dressing room, strips, and comes before a doctor for his examination. This routine examination can be done in from ten to twelve minutes. If a man is found with a very badly diseased condition, he is sent to the chief of staff for further study, and it may take an hour to complete this examination. But any one engaging in this work will find ten or twelve minutes sufficient time for the routine examinations. The second point is that these examinations are not made for the purpose of throwing out those too old to work, those with slightly diseased conditions, and those with chronic diseases that interfere with only certain types of work, namely heavy work. They are made for the protection of the old working force against contagious diseases and for the protection of the applicant himself if he has a disease that makes work of any kind detrimental to him. Every industry should assume its share of responsibility toward society until the state takes up that burden. We have no right to reject old men, or any one else except those mentioned. There are just two things to reject on, contagious disease that affects your working force, and a very bad heart, or blindness, or some condition that makes it impossible for that man to work for his own good.

DR. W. IRVING CLARK, JR., Worcester, Mass.: The preciseness of my paper was to answer a great many questions which I have had written to me in the last two or three years on our work, and is simply an answer with regard to what we are doing, and how we are trying to do it. We place all our men just as carefully as we can. We would rather have a deaf and dumb man than anybody else. They mind their business, and they never make any trouble. We take all the one-armed men. They are the finest fellows for work, if they can do it, that I know of. If we can find a job for a one legged man, we will take him. I think it was Dr. Farnum who brought out the question of cooperation, the safety engineering department, the medical department, and the employment department should actively cooperate, they should be in one building and should form a separate department, with these three subdivisions. Dr. Fiske spoke about the completeness of examination and the time required. I would rather take forty-five minutes to make an examination than ten. But, what are you going to do when there are 100 men lined up, and the employment clerk says 'We will have to get these men through," and there are more behind them. We must realize that our business is to get men into the factory and to keep them working, if we are factory physicians. We would like to be sociologists, but unfortunately, we have to work in a factory, and there are certain things in a factory that have to be recognized. Time is one of the most important elements in factory work.

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THE SANITATION OF PUBLIC MARKETS*

DONALD B. ARMSTRONG, M.D., M.A., M.S.
Assistant Secretary, National Association for the Study and Prevention of Tuberculosis; Executive Officer, Community Tuberculosis Experiment
NEW YORK

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The establishment of public markets, especially when of a temporary and experimental character, introduces into the community life many problems of intimate sanitary and hygienic importance, problems which the public market has in common with the retail store to a large extent. Concentration, however, of retail business in certain areas, possibly under one roof, increases the magnitude of the problem and at the same time enhances the directness and simplicity with which a sanitary control can be established. In any event, whether under private or public auspices, any municipality must meet the responsibility of establishing and maintaining adequate sanitary and hygienic regulations in connection with the city's food distributing system.

Sanitary food control is of interest from several points of view. In the first place, there are the representatives of the municipality, usually the health department officials, who have the responsibility of inspection and law enforcement. Of great significance in this connection are the recent findings of health departments, perhaps especially the New York City department of health, to the effect that intelligent, educational inspection is tremendously more efficient, from the point of view of accomplishing results, than is any amount of uninstructive visiting, legal prosecutions and insignificant fines.

Further, the dealer himself is intimately concerned in sanitary law compliance. It is essential that he should be made to realize the economic importance of sanitary food protection and waste prevention, in addition to the health hazards of careless food infection.

Finally, there is the consumer, the purchaser, who is interested in food protection and desires food protection, aroused to the necessity by motives of disease prevention, cleanliness, decency, and estheticism.

From whatever point of view the problem is approached, however, those interested soon realize that the special problems of market sanitation are, in the main, three in number. In the first place, because of the perishability of ordinary food products, and because of the risks of disease transmission, there are dangers of contamination and possible infection, by means of dust, dirt, flies and dirty fingers. It is certainly conceivable that tuberculosis, typhoid fever and other diseases may be, and perhaps frequently are, transmitted in this way. Further, there are the special dangers of decomposition, the rare development of genuine ptomains, the more frequent pathologic bacterial infections, etc. Finally, there must be mentioned the comparatively insignificant hazards resulting from adulterated or preserved foods, a problem in fraud prevention largely of economic, rather than of sanitary, significance. Such a classification does not, of course, include certain other possibilities, such as the presence of natural poisons, as in mushrooms, the presence of animal parasites, as in pork, the development of a specific poison, such as solanin in potato sprouts, and special individual idiosyncrasies, as pathologic reaction to egg protein. It ignores entirely what would seem to be the most important food factor in health conservation, namely, proper dietary food selection, a factor of hygienic rather than of sanitary importance and one which is, therefore, not apropos at this point in the discussion.

To confine the discussion largely to the sanitary aspects, it might, perhaps, for the sake of clearness, be best to adopt a rough classification of the major points in market sanitary control and to discuss these very briefly under the following headings:

PRODUCTS AND THEIR CARE, LABORATORY CONTROL

Chemical Analyses.—It is, of course, possible nowadays to find in most large cities adequate facilities for the chemical study of foods offered for sale in municipal markets, and therefore, more or less under municipal guarantee. Such analyses should be made to detect illegal adulterants or preservatives and to insure protection against the sale of deteriorated or decomposed products.

Bacteriologic Analyses.—Routine procedures of this kind are, of course, essential if milk and dairy products are permitted to be handled in the market. Bacteriologic analyses to detect contamination of foods from various sources may, from time to time, be worth while. Consequently the necessity for municipal equipment to meet demands in this field should be recognized when market plans are being developed.

Calorific Analyses.—This is the type of analysis and check which cities will have to recognize in the future. Eventually governmental authority will have to take the responsibility for food standardization, and if this standardization is to be on a rational basis, calorific values will have to be employed. Further, if the purchaser is ever to be educated to the extent that she can buy her food supply on an intelligent food value basis, there will have to be mechanism for routine, calorific food analyses. In the present state of development an equipment of this kind cannot, of course, be considerered a prerequisite to a market establishment. At the same time, its need should be emphasized, so that in the future it may become an essential part of municipal market control. Again, it must be pointed out that this is, of course, of hygienic rather than of sanitary importance.

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

THE STAFF

Living Wage—As Dr Gorgas has recently emphasized, essential to the hygienic welfare of the worker is a sound, economic status It means for the industry a higher degree of intelligence and cooperation from the employees, factors which are essential in the enforcement of the rules of personal hygiene This is perhaps of greater significance in food handling establishments than in almost any other industry

Selection of Healthy Employees—This is of the greatest importance in food industries, if we are to avoid a constant succession of "Typhoid Mary" catastrophes Modern health departments are requiring that food handlers be free from communicable disease The proper place to inaugurate a check is at the beginning of the period of employment This can be done only by an initial medical examination resulting in the selection of healthy employees

Periodic Medical Examinations—This is now being required by modern health departments for the detection of disease carriers or individuals suffering from communicable diseases Here, of course, municipal laboratory equipment is essential for the conduction of Widal and Wassermann tests, the examination of sputums and throat cultures, the bacteriologic study of excreta, etc These requirements are, of course, applicable to small retail food establishments and, indeed, to restaurants, boarding houses, hotels, etc On the other hand, the city, if it maintains municipal markets, has a special obligation for guaranteeing that the food products under its control shall be handled by individuals free from communicable disease

EQUIPMENT AND METHODS

In this field the details are numerous and it is impossible in this paper to discuss them at all fully The major points might be enumerated as follows

It is absolutely essential that there be adequate and sanitary toilet and handwashing facilities for the market and stall employees Hot water, individual towels, and soap from a holder, are essential Toilets should be equipped with automatic flushes, so as to avoid a series of constant contacts Washing facilities should be readily accessible in conjunction with toilet facilities

Food should be protected from animal contamination by at least a 2-foot elevation from the floor

Receptacles with covers should be provided for rubbish and garbage, satisfactory arrangements being made for emptying and cleaning, and the rules of the market should prohibit the cleaning of fowl, the accumulation of refuse, etc

Adequate refrigeration is essential This applies to storage refrigeration facilities in conjunction with the market, and to special refrigeration for local stall ice-boxes, or for enclosed display cases The proper draining of ice-boxes, especially in case ice is used for refrigeration, is required by practically all market codes

The laws regarding spitting should be strictly enforced

Most municipal ordinances require that food establishments should be properly screened from flies during the fly season In addition, it is usually required, to quote the sanitary code of New York City, that "no food intended for human consumption should be kept, sold, offered for sale, displayed or transported unless protected from dust, dirt, flies and other contamination" This is usually interpreted to apply particularly to foods eaten without being cooked or peeled

Efficient janitorial service, with an arrangement with the stall occupants for cleaning, is necessary if decency is to be maintained

Public markets, particularly when under municipal control, should take advantage of every opportunity, by the use of placards, leaflets, etc, for the education of the public regarding the dangers of food infection as a result of unnecessary handling, the risk in promiscuous coughing and sneezing, etc

THE BUILDING

Adequate light and ventilation are not only necessary for the physical welfare of the employees, but are tremendous instruments in the maintenance of cleanliness and in increasing the commercial attractiveness of the market

Floors should be impervious, waterproof, properly drained, and maintained in cleanly condition

A plentiful water supply for flushing and other general purposes is absolutely necessary to market operation Incidently, in this connection, drinking fountains should be provided for employees and patrons

ADMINISTRATIVE CONTROL

It would seem, judging from experience in many American and foreign cities, that a concentration of authority and responsibility is an asset in the operation of municipal markets This implies the establishment of a market department or at least of a market division in an existing department The necessity for coordination in this field is most strikingly illustrated by the administrative situation arising subsequent to the establishment of the temporary curb markets in New York City a year or more ago While these markets were established by the borough president's office, on street area under the control of that office, a superficial survey of the diffusion of responsibility indicated that in addition to the borough president's office there were also concerned, from diverse points of view, the department of health, the department of street cleaning, the department of water supply, the department of docks and ferries, the bureau of licenses and the department of police Certainly if New York City is to take further steps in the direction of municipal market development, a concentration of authority is essential From the point of view of sanitary control, there can be no doubt that responsibility should rest with one office, rather than be distributed as was the case in New York City, where the health department inspectors were supposed to enforce the rule regarding food protection, the street cleaning department provided janitorial service of a kind, the borough president's office was responsible for cleanliness as regards the toilet facilities, etc

Historically, most cities attempting to deal with the necessity for municipal retail markets have paid some attention to the economic aspects of the situation, have attempted to control prices in a greater or less degree, but have, to a large extent, ignored the necessities for special sanitary regulations and particularly for specific education measures in food hygiene The markets of Philadelphia and Baltimore, while attractive structures, and while apparently serving a useful purpose, by no means take full advantage of the opportunities for food control and food education In this field, so far as the observations of the author are concerned, the city of Cleveland is unique The Euclid Avenue Market in Cleveland in addition to being a model establishment from the point of view of construction, light, ventilation, refrigeration, food protection, and toilet and hand washing facilities, has taken advantage of many opportunities for educating the consumer along lines of food sanitation Of course even in this market much remains that could be done in increasing popular knowledge regarding food selection, the economies of food purchasing, and the essentials of food care in the home

In conclusion, it cannot be too forcibly emphasized that in modern public health work, and particularly in the field of food sanitation, we are at the point where we are ready to drop the word "public" and to talk primarily about health Paradoxical as it may be, the keynote of modern sanitation, and especially food sanitation, is personal hygiene This means personal cleanliness From the point of view of disease prevention it is undoubtedly of much greater importance for any city to teach its food handlers to wash their hands before they eat than it is for that city to solve its sewage disposal problem, even though it may maintain an indecent and unesthetic crude disposal by river dilution From a health point of view public market control, while it must be founded on a sound, sanitary basis, is to be effected essentially through a program of personal hygiene If eventually municipalities would meet the responsibility of having this program of personal food hygiene include, not only the infection preventive and disease suppressive factors of food protection, but also the positive, health creative, educational factors of dietary food selection, the public markets would then be utilized in something like their full potentiality as creative, social forces

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ABSTRACT OF DISCUSSION

Dr J N Hurty, Indianapolis The doctor is right in laying emphasis on the fact of personal cleanliness of the food handler One of the best regulations that could be enacted would be to require that food handlers restrain themselves from introducing their fingers into any of the body cavities In this city, and in other cities, too, I have noticed that food handlers in the dairy lunches, for instance, are very prone to introduce their fingers into their noses and into their ears and into their mouths and then handle food with the same unwashed fingers The possibility of disease transmission in such instance is very great and the habit is repulsive and repugnant In Indiana, and especially in Indianapolis, we have spread the propaganda among the food handlers, especially in restaurants and in hotels, that waiters must be instructed to keep their fingers out of their body cavities We had a very severe outbreak of typhoid fever last fall at Lake Wawasee All the typhoid fever at this lake occurred at one hotel The disposal of sewage was not ideal, but was passably good Bath water was pumped from the lake not very far from the bathing place, but the tank was never filled, except at night time when there was no bathing going on The whole outbreak was attributable to a single handler of food a woman who was a typhoid carrier Very shortly after her appearance within twenty days, typhoid commenced to appear She handled the salads and the pastries

Dr John Dill Robertson, Chicago Dr Armstrong speaks of personal hygiene. This is very important and one of the oldest sanitary teachings Moses was one of the world's first and greatest sanitarians and he laid especial emphasis on personal hygiene He made it a fundamental rule that no man could offer up a prayer to God until he had washed his hands This must have been a custom of the Egyptians from whom Moses received his education and training This world-old sanitary teaching is no less important today In oyster contamination we have the dirty hands of the oyster shucker, in milk contamination, the dirty hands of a milkman, and so all along the line of food handling

Dr Harold B Wood, Charleston, W Va The educational standpoint is the main one on which to develop the food question It is very largely a waste of effort if men are sent into grocery stores and other food establishments to make inspection, if the health officer does not go further back and take up the question with the producer, and with the general public The general public of course, can be reached most effectively through the newspapers which in their progressiveness and their high ideas, are always willing to assist the health officer in instructing the public along these lines The general public should be instructed in what constitutes poor food, what constitutes good canned foods and what swelled cans mean The grocer should not simply be told to send the foods back to the original man, but the canner should be instructed how he can produce better foods Many swelled cans are being sent from one state to another The health authorities of the states should take it up with the canners and teach them that there need be no waste in canned foods if a little more sugar, or, the proper amount of sugar, and the proper amount of heat for sterilization are used Canning clubs are being established throughout the country, and these need public support because they are the educational part in the canning industry of the future But they need supervision, they need sanitary inspection just as much as any other school, and if they are permitted to send out canned foods which spoil before they reach the consumer, as they do in many cases, then the consumer and the general public will turn a deaf ear to the canning clubs and mark them as failures The cooperation that should be urged on the general manufacturer is the labeling of canned foods.

Dr Mary Dunning Rose, New York I visited one of the automobile factories here The noon hour came and the food was delivered to the employees in sanitary receptacles individual sanitary paper mache or paper boxes and cups Farther on we saw men eating with hands filthy black Not one man had made any attempt to wash his hands Then we passed a number of stationary wash basins but not a towel was visible and the basins were dry If they are not teaching factory workers the necessity of washing their hands before they eat, what hope can we have out in the field work to educate the public that they must wash their hands before eating? As to the examining of food handlers, we make a Widal test on a servant either in our homes or in our institutions We find it positive That person is a wage earner of the family, she or he is a menace to the community, and must be isolated if the community is to be safeguarded What are we to do with the dependents? If we find them tuberculous we must isolate them I cannot but feel that the way we have dealt with tuberculosis allowing the consumptive to go free in the community, infecting more and more people, is not intelligent or sensible They should be isolated the same as we isolate smallpox patients The paper urged the examining of our food handlers, but it gave no means to take care of them and to safeguard the community This phase of the problem is important whether it means state insurance for the family, as well as for the sick individual, or federal insurance

Dr W W Tompkins Charleston, W Va. I want to say in reply to Dr Robertson that if we again quote Scripture and from the New Testament we are told that to eat with unwashed hands defileth not a man it is the things that proceed from the heart, from within, that defileth him In this age in which we are now living we must confine ourselves more to modern bacteriologic teaching than quotations from Moses or a greater than Moses in the discussion of modern sanitation

Dr Charles J Hastings Toronto Ont Might I ask a question? How do they determine in New York whether a handler of food is a carrier or suffering from a mild form of some communicable disease? Does the department of health take the responsibility and bear the expenses of the examination, or do they accept a certificate from the family physician, or the physician employed by the employer of the laborer? Those suffering from the milder forms of communicable disease or carrier can get employment that would be perfectly safe, in which they would not be a source of danger, but they should not be employed as handlers of food That might probably be a compromise to help out

Dr Robert T Legge, Berkeley, Calif I understand that in Chicago the food handlers who are employed in some of the large hotels must have satisfactory medical examinations and certificates from the medical men, that the food handlers must be free from communicable diseases and open tuberculous and syphilitic lesions The health commissioner will accept these certificates If we intend to prevent all syphilitic persons from handling food, we would have to deny, I should say, about 50 per cent of the population It is only the persons with open cases of not only syphilis but tuberculosis who should be denied the privilege of handling foods

A REPORT OF AN UNUSUAL CASE OF CEREBRAL MALARIA

OTTO T BROSIUS, M D
PANAMA, R P

In view of the epidemic of anterior poliomyelitis in New York, and the constant travel between that metropolis and Panama, the case here reported is of unusual interest from a diagnostic standpoint because of the several exceptional characteristics it presented

The health authorities of the city of Panama first discovered the case and sent the patient a girl aged 11 years, into Santo Tomas Hospital for diagnosis and treatment Accompanying the patient's admission, a history of illness for two days was given which began Sept 9, 1916 with malaise, headache and chills, and continued with high fever The following day the patient had two convulsions, paralysis of the right side of the body became evident, and she neither spoke nor took any nourishment Communication with any one arriving recently from the United States was denied by the family At the time of onset of the illness the patient was living in Panama, but she had moved into this city, Aug 25, 1916, only sixteen days before the onset of the illness, from the town of Arrajan in the Republic of Panama While there, the family stated, she had several times been stricken with prolonged and intermittent fever and chills

On the second day of the illness a blood smear was sent to the laboratory of this hospital by the health officer of the city of Panama, and the pathologist reported the presence of crescents and many ring forms of mostly the estivo-autumnal parasite, but a few of them showed tertian characteristics Therefore, before sending the patient to the hospital, the attending physician in the city administered 7½ grains of quinin hydrochlorid intramuscularly

The patient was admitted to Dr Preciado's service, Santo Tomas Hospital, Sept 11, 1916, at 11 a m, with a temperature of 38 C (100 4 F), which that same evening rose to 39 8 C (103 6 F) She was fairly well developed, but rather undernourished, and of about normal size for her age She lay on her back with the head a little retracted, her eyes rolling upward, and could not be induced to speak, being in a state of semiconsciousness As much of her family history as could be obtained was negative, and contained nothing of importance

Physical examination revealed the head, scalp, ears, mastoid regions and nose negative The pupils were equal and reacted to light, and were neither dilated nor contracted The neck was found to be quite rigid, and the patient uttered a faint cry when one attempted to bend the neck a little

There were no glandular enlargements The jaws were not rigid and the teeth seemed negative, but the tongue bore a brownish coat

The skin was clean There were present neither jaundice, eruption nor discoloration

The lungs were negative, there was no cough, and the respirations were even, normal in rate, and were not labored

The heart was negative and the pulsations at the wrists were good

The abdomen likewise was negative, and the spleen not palpable

The reflexes were absent at the knees

Kernig's sign of the left side was positive

The right arm and leg showed apparent absolute flaccid paralysis, there was not the slightest motion in either right limb, and when dropped each fell flaccidly as if paralyzed, but there was no difference in temperature between the limbs of the two sides The face gave no signs of paralysis, both sides moved symmetrically

A blood smear was now taken which showed crescents and a very few ring forms, some of which, I believe, were tertian parasites because of the increased size of the erythrocytes, and the more or less characteristic features of the organism,

A lumbar puncture was done next The fluid was found not to be under pressure, and was absolutely clear The cell count showed 5 to the cubic millimeter The pathologist gave a report negative for organisms

On admission, 2 grains of calomel, followed by 1½ ounces of magnesium sulphate and 10 grains of quinin were given by mouth Four 10-grain doses of quinin were administered daily for the first three days, and after that the quinin was reduced to 10 grains three times a day until discharge

September 12, the second day in the hospital, the patient's temperature dropped rapidly from 38.8 C (101 8 F) to 36 8 C (98.2 F), and remained subnormal for sixteen hours To our surprise the supposed hemiplegia had disappeared, though the limbs affected were still quite weak, and the child seemed brighter In the afternoon the student nurse reported two *slight convulsions*, which she described as clonic Accordingly, bromids were given

At this time the urine and stool examination yielded negative results

The white blood count was 12,800

DIFFERENTIAL WHITE BLOOD COUNT

	Per Cent.
Polymorphonuclear neutrophilic leukocytes	70
Polymorphonuclear eosinophilic leukocytes	0
Transitional leukocytes	1 5
Mast cells	0 5
Large mononuclear leukocytes	3 5
Lymphocytes, large and small	24 5

During this count of 200 cells, only one crescent and one estivo-autumnal ring were found Erythroblasts, achromia, polychromatophilia, poikilocytosis, anisocytosis, and basic stippling were not present

The hemoglobin was 68 per cent, and the red blood count 4,240,000, making a color index of about 0 81 plus

While the blood was being taken for examination, a tendency to coagulate with unusual rapidity was noted

September 13, the patient's third day in the hospital, there was a rise of the temperature to 37 6 C (99 7 F), which soon dropped again to subnormal and remained there during the remainder of her stay in the hospital

Because the neck still remained rigid, another lumbar puncture was done, but it likewise yielded negative results The right limbs had acquired more power, and the patient showed marked improvement

September 14 and thereafter there was almost absolute improvement The child became bright and talkative, the temperature remained normal, the pulse became slower, and normal strength was regained in the limbs once thought to be paralyzed Another urine, stool and blood smear examination gave negative results

According to Manson, cerebral malaria was at first supposed to have been caused by the malarial pigment, which formed thrombi in the cerebral veins, but later investigation gave emboli formed by the parasites as the etiologic factor in this condition Accepting this explanation, it seems rather unusual that these should have occurred only on the left side in this case

The prognosis is of course very good for this attack, but experience teaches us that patients harboring the gametes within their blood are always subjected to repeated subsequent attacks of the disease Tremendous doses of quinin have been unsuccessfully given in this hospital with an attempt to destroy these sexual forms, and even salvarsan has failed to produce the desired result

Santo Tomas Hospital

DISINFECTION OF WAR WOUNDS BY THE CARREL METHOD

AS CARRIED OUT IN AN AMBULANCE AT THE FRONT *

H H M LYLE, MD

Professor of Clinical Surgery, College of Physicians and Surgeons of Columbia University Attending Surgeon St Luke's Hospital Late Chirurgien Chef Ambulance d'Annel Oise France

NEW YORK

The Carrel method of disinfecting wounds is based on the following conception To render an infected wound sterile it is necessary to employ a suitable antiseptic in such a manner that the chosen antiseptic comes into contact with every portion of the wound, that the antiseptic is maintained in a suitable concentration throughout the entire wound, and that this constant strength is maintained for a prolonged period If these conditions are fulfilled, every wound will show its response to the treatment by the diminution and disappearance of its micro-organisms

The chemical destruction of the micro-organisms of a wound depends on the difference of resistance existing between the tissues involved and the bacteria present on their surfaces Practically every surgeon will acknowledge the fact that the usual routine application of powerful antiseptics will not sterilize an infected wound "The success of the Carrel method which enables us today to make an infected wound sterile is not due to any miraculous properties of any new drug It must be attributed to a combination of processes which permit the employment of antiseptic substances determined under such conditions of concentration and of duration that their action becomes efficacious These processes constitute a method in which all the details are interdependent It would be impossible to alter the antiseptic without changing its mode of employment Equally, a modification in the technic would demand an antiseptic endowed with different properties"

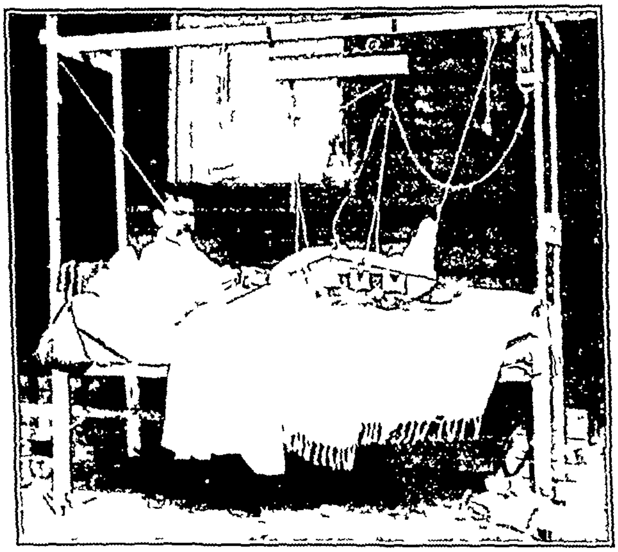

Fig 1—Balanced suspension treatment with method of conveying Dakin's solution to the distributing tubes It is comfortable and greatly simplifies the dressings

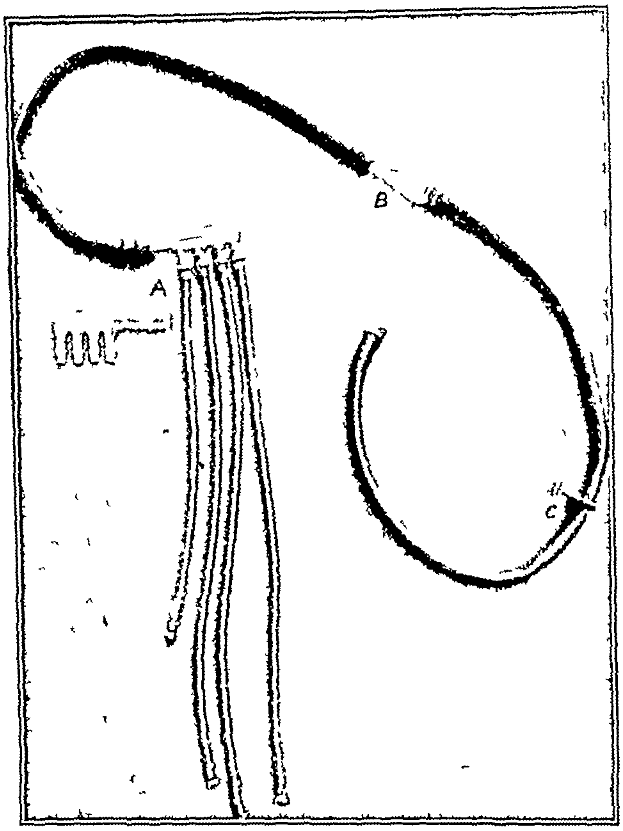

Fig 2—*A* rubber instillation tubes with ends tied and lateral perforation size 18 French attached to a four way glass connection *B* glass drop by drop connection *C* adjustable clamp for controlling the flow

The antiseptic employed is Dakin's *sodium hypochlorite*, 0.5 per cent It is an ideal isotonic wound antiseptic of high bacterial activity and low toxic or irritating quality The latter feature distinguishes it from Javelle water, Labarraque's solution, etc The hypochlorites of commerce are of inconstant composition and generally contain free alkali or free chlorin Such substances are irritating, and when used in moderate concentration may produce very unfavorable results In addition to being a strong wound bactericide, Dakin's solution, because of its pyocytohemolytic powers, has the great clinical advantage of being able to dissolve pus, old blood clots, tissue debris, etc The living tissues resist this dissolution, owing to the protection afforded them by the sodium chlorid of the serum

OPERATIVE TECHNIC TO PREPARE THE WOUND FOR THE INTRODUCTION OF THE ANTISEPTIC

The future course of the wound is directly dependent on the thoroughness of the first surgical act This should be carried out under the strictest aseptic precautions and at the earliest possible moment It consists of a thorough, methodical, mechanical disinfection of the wound with the extraction of all shell fragments, particles of clothing, dirt, etc

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* Read before the Surgical Section of the New York Academy of Medicine Oct 6 1916 the paper being illustrated by colored photographs (Lumiere) showing the wounds and their progress

* A rather full description of the method of preparing Dakin's solution has been omitted since a similar description was recently published in The Journal. It will appear in the author's reprints

The operative field is painted with tincture of iodin, and the bruised and necrotic skin edges of the wound are trimmed away with a sharp knife The knife and forceps are then put aside With new instruments the wound is laid open like a book and gently explored for shell fragments, pieces of clothing, pockets, etc Everything that could have been infected by the traumatism, or could become the source of infection, is removed All noninfected tissues, and tissues unlikely to become infected, are preserved

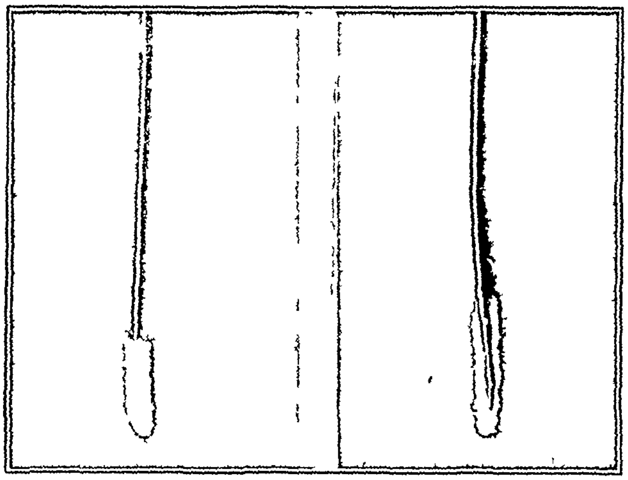

Fig 3—Perforated tube tied at end and dressed with toweling on right, portion of toweling cut away to show lateral perforation

Gentleness of manipulation is the keystone of the technic Brutalization of the traumatized tissue is a technical crime In many of the cases it will be found that fibers of clothing, dirt, grass, etc, are encrusted in the muscular surfaces of the wounds To avoid overlooking this blood-stained debris, the tract of the projectile must be lightly but methodically resected Great conservatism is exercised in the removal of comminuted fragments of bone The same minute and careful mechanical *cleansing is carried out* in osseous wounds as in the soft parts Before placing the instillation tubes a careful revision of the wound is made, and particular attention paid to securing a perfect hemostasis Muscular tissue infiltrated with blood is difficult to disinfect There is another reason special to the employment of Dakin's solution which calls for a thorough hemostasis Owing to its hemolytic property, Dakin's solution has the power of dissolving recent blood clots A poor hemostasis invites the danger of a secondary hemorrhage

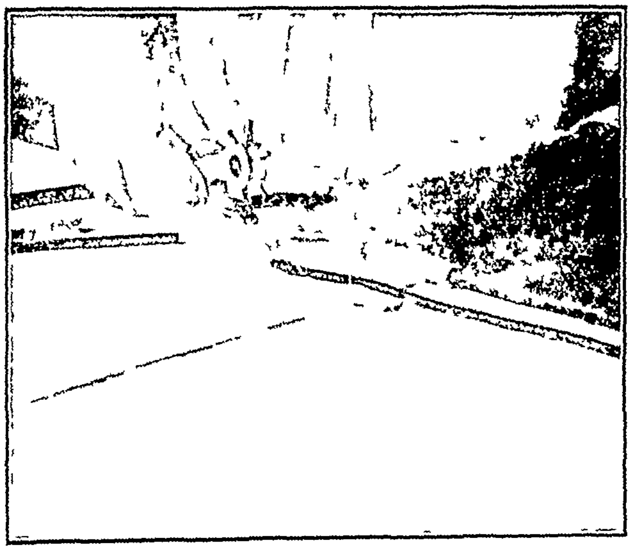

Fig 4—Punching of the lateral holes in the instillation tubes and the prepared dressed tubes

Counter openings for drainage are rarely employed If the necessity for their use should arise, one should avoid making them at the most dependent point, as the goal of technic is to keep the liquid in contact with all the surfaces of the wound

THE INTRODUCTION OF THE INSTILLATION TUBES

The guiding principle is to place the tubes so that the liquid will come into contact with every portion of *the wound The placing of the tubes will vary with* the nature of the wound

Superficial Wounds—A thin layer of gauze is placed over the wound, and on this the requisite number of instillation tubes The tubes are secured to the wound edges by a rubber cuff and suture, or a two-way-flow tube (Fig 5) is used If the tubes are placed directly on the surface they become encrusted, and the orifices are blocked with granulations Too thick a layer of gauze should *not be used, as it will be*come clogged with the wound secretions and prevent the solution from reaching the wound

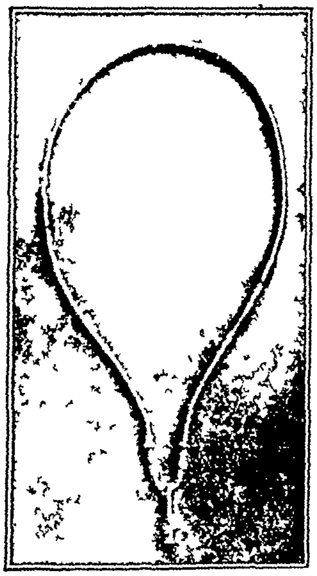

Fig 5—Perforated two way flow tube with connecting tube and rubber cuffs for suturing to the edge of the wound

Penetrating Wounds—In the simple type, a tube without lateral perforations is introduced to the depth of the cavity and the solution allowed to well up from the bottom In a large tract terminating in a cavity with irregular collapsible walls, a little gauze is introduced to support the walls of the cavity and allow a more thorough penetration of the fluid Penetrating wounds with the point of entrance in a dependent position (as the buttock, posterior surface of the extremities, and the back) are treated with perforated tubes dressed with toweling (Fig 3) These dressed tubes keep the antiseptic in contact with the wound A suitable nonperforated tube can also be used

Through and Through Wounds—A perforated tube with the tied extremity uppermost is passed from the lower to the upper wound The liquid, escaping through the small lateral holes, flows back along the tract to the inferior orifice, moistening the entire wound

Wounds of the hand or foot, open amputation stumps, etc, are immersed in Dakin's solution for from ten to fifteen minutes every two hours until *the wound is sterilized* The skin is protected by smearing it with sterile yellow petrolatum

THE AFTER-CARE OF THE WOUNDS

The materials used are described above In the care of the wounds a strict instrumental technic is employed, the gloved hands never coming in contact with the wounds or dressings

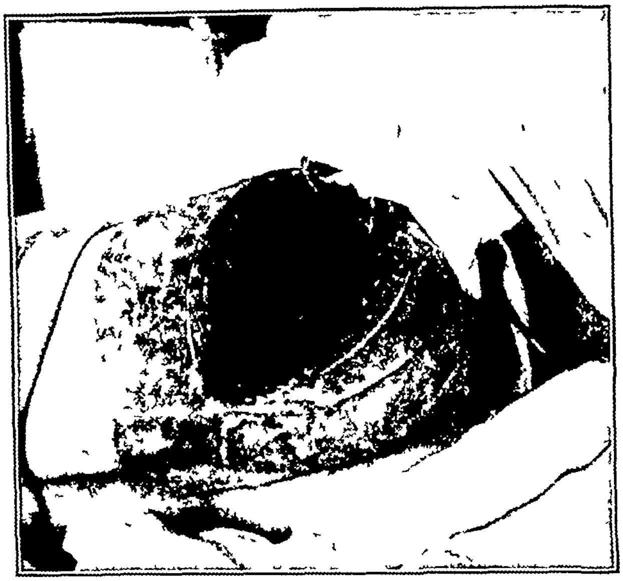

Fig 6—Large shell wound of the buttock exposing the sacrosciatic notch The necrotic edges and the surface of the muscles have been resected and the wound is now ready for the placing of the instillation tubes Gauze impregnated with yellow petrolatum protects the skin

Instillations of the fluid are made every two hours by releasing the adjustable clamp (Fig 2 *C*) controlling the flow The amount of solution employed varies with the nature and extent of the wound, for the average wound, 10 c c are sufficient This interrupted instillation is kept up until the wound is proved sterile The tubes are then removed and a compress moistened with Dakin's solution is applied Formerly a continuous instillation was the method of choice, if used at all it should be discontinued in from twenty-four to forty-eight hours The rate of instillation is from 5 to 20 drops a minute, according to conditions The object is to moisten the wound surfaces and not flood the bed

Once a day, oftener if necessary, the wound, the tubes, and the flow of the liquid are inspected Flushing the wound shows if the solution is being delivered as planned, and mechanically washes away the excess of wound secretion

The Carrel method is not a continuous irrigation It is a mechanical attempt to deliver an antiseptic of definite chemical concentration to every portion of a surgically prepared wound and to insure its constant contact for a prolonged period

PROTECTION OF THE SKIN

In order to protect the skin from the liquid which may accumulate in the dependent portion of the dressing, gauze impregnated with yellow petrolatum is applied to the skin surfaces below the wound (Fig 6)

BACTERIOLOGIC CONTROL OF THE WOUND

This consists in a regular determination of the number of microbes on the wound surfaces This is done by transferring with a standard loop a portion of the secretion to a slide and counting the number of microbes per microscopic field This is carried out every second day, and the results are entered on a suitable chart When the microbes are absent from the wound on three successive days, the wound is considered sterile Though not absolute, the bacteriologic control is of great practical value as a therapeutic guide

The determination of the cellular elements of the exudate, if taken along with the bacteriologic control, gives valuable information For the first six days the exudate is essentially composed of polynuclears and enormous numbers of bacteria Toward the sixth day the polynuclears tend to disappear and are replaced little by little by the mononuclears At the same time the bacteria are diminishing After the tenth day the macrophages appear, and only a few bacteria are found incorporated in the phagocytes The appearance of the macrophages in the exudate is a favorable sign, being a forerunner of the approaching asepsis[1]

A bacteriologic examination of the wound on the entrance of the patient to the hospital is, as a rule, negative The charting of this finding would give a false impression because the germs are undoubtedly present, but the difficulty is in securing a smear from the infected area It is better to begin the bacterial chart one or two days after the reception of the patient As a rule the germs begin to appear after the ninth or tenth hour There is an initial rise on the second or third day This remains so for a few days, and then the descent begins Wounds of the soft parts are sterilized in from five to eight days Greatly traumatized wounds require a longer time Fractures can be sterilized in from two to four weeks If sequestrums are present, they must be removed to obtain an asepsis

Wounds sterilized by the Carrel method are readily reinfected if the treatment is stopped

Reunion of Wound—When, on three succesive days, the bacteriologic control shows the wound to be sterile, it is closed by careful layer sutures In the favorable cases this can be done on the fifth day The average time for the soft parts is from seven to nine days

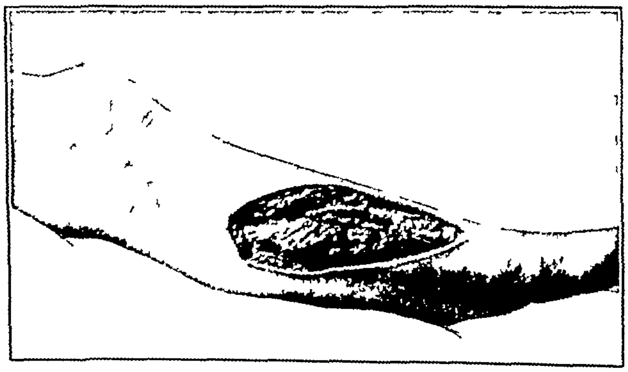

Fig 7—Shell wound of the soft parts of the leg with extensive loss of skin All the traumatized tissue has been resected and the wound treated by the Carrel method

In cases in which sutures cannot be employed, the wounds are closed by adhesive straps passed in such a way that, besides pulling the edges of the wound together, they make a compression around the whole circumference of the limb

For extensive wounds two Canton flannel bands are prepared, the length to be slightly longer than the wound, the breadth to be a little less than half the circumference of the limb On the hemmed edges, shoe hooks are inserted every 2 cm The limbs are painted up to the edges of the wound with a resin, varnished, and the woolly side of the Canton flannel applied One should wait until the traction strips are firmly adherent before lacing them with rubber bands The tension of the rubber bands rapidly draws the wound edges together

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[1] Depage A Du controle bacteriologique comme indication de la suture des plaies de guerre Bull et mem Soc de chir de Paris 1916 42, 1987

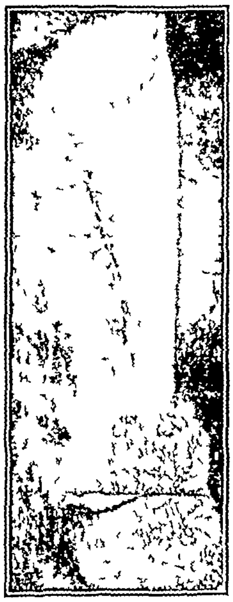

Fig 8 — Secondary sutures result fourteen days later

Wound Healing —The wounds treated by the Carrel technic are entirely different in appearance from those treated by the ordinary methods The Carrel wounds have strikingly bright red vivacious granulations, a minimum amount of mucoid-looking secretion, and no odor There are no redness, no tenderness, no induration in the skin edges The wounds heal with the minimum amount of connective tissue, the scars are supple, the wound edges pliable, and epithelial growth is rapid

RESULTS

In the early months of 1915 I was in charge of Hospital B, American Ambulance This hospital contained 150 beds, and was situated at Juilly, Seine et Marne, 40 miles behind the firing line The wounded were brought from Compiegne in automobile ambulances, arriving in Juilly about twenty-four hours after being wounded This year my experience was gained while surgeon in chief of an ambulance situated 3½ miles behind the firing line

At Hospital B the following procedure was immediately carried out

1 Careful examination of the soldier's clothes to determine the absence or presence of clothing in the wounds

2 Examination and dressing of the wound

3 Localization by Roentgen ray of all bullets, shell fragments, etc , and their immediate extraction The after-treatment was according to accepted surgical principles We were well satisfied with the results obtained, as they compared favorably with those of similar hospitals Today we should consider them failures We had the usual number of pussing wounds, pyocyaneous infections, secondary abscesses, osteomyelitis, joint complications, amputations for infection, delayed healings, etc , along with the worries and uncertainties which are incident to such cases

For the first ten days at the front we followed the old standard methods and the newer physiologic ones Meanwhile we were tentatively trying out the Carrel method At the end of this time the contrast in the results were so striking that we adopted the Carrel method for the hospital

Our experience was that of Depage[1] "The transformation which was established in our results was startling The immediate complications became more and more rare, and suppuration disappeared from our services almost completely" In our service during four and a half months no secondary abscess developed, there was only one case of osteomyelitis, and this responded readily to treatment There were no amputations for infection The average stay for wounds of soft parts was fourteen days, for compound fractures from twenty-eight to thirty-six days

The wounds treated were almost exclusively inflicted by high explosive shells, shrapnel, trench torpedoes, bombs, hand grenades, etc Very few bullet wounds were received

Depage[1] reported his results obtained at the Ambulance de la Panne from June 1 to August as 137 cases sutured, complete union in 112, partial union in 23, failure in 2 cases These figures include 6 wounds of the knee, 12 amputation stumps, 17 fractures, and 102 wounds of the soft parts On the date of August 2, Depage had eighty compound fractures without a drop of pus In August the Ambulance Carrel[2] had closed 450 wounds with only six failures

SUMMARY

The Carrel method is not a continuous irrigation It is not dependent on the miraculous power of an antiseptic, or on any one feature of the method, but on the combination of the whole It is a method of sterilizing wounds by mechanically delivering an antiseptic of definite chemical concentration to every portion of a surgically prepared wound and insuring its constant contact for a prolonged period The progress of the sterilization is rigorously controlled by the microscope Gentleness, thoroughness, and attention to detail are essential for success I firmly believe that the adoption of this method is destined to save many lives, to reduce the gravity of the mutilations, and allow the rapid return to the front of many men who would otherwise be lost to the service of their country

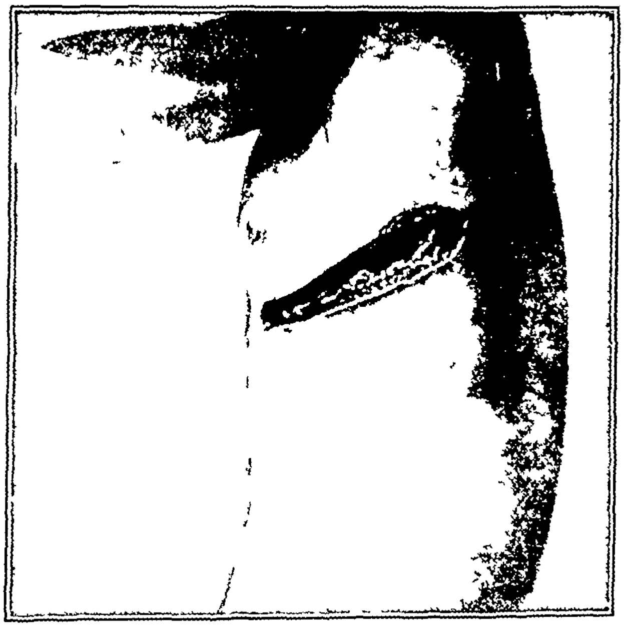

Fig 9 —Extensive gunshot wound of chest comminuted fracture of ribs hemothorax Sterilized in twelve days sutured completely closed in eighteen days

50 East Fifty-Third Street

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2 Carrel, A Personal communication to the author

Intellectual Ignorance —Ignorance, which in all matters of morals extenuates the crime, is itself, in intellectual matters, a crime of the first order —Joubert

BISMUTH POISONING FOLLOWING BISMUTH PASTE INJECTION

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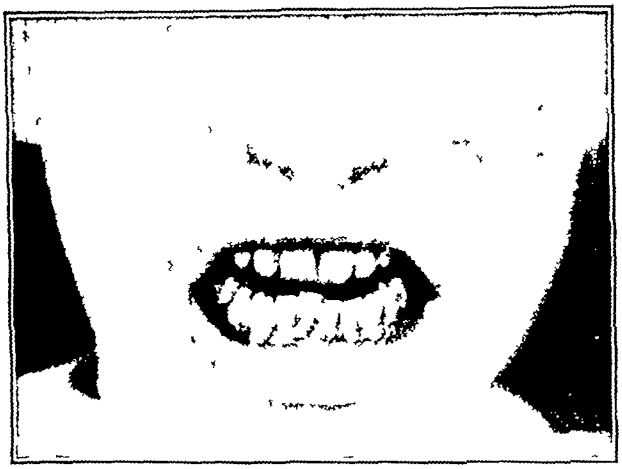
In 1912, when Mayer and Baehr[1] reviewed the literature of bismuth intoxication following the local application of bismuth to granulating surfaces, they collected reports of sixty-four cases of poisoning with twenty-four fatalities Since that time there have been four cases of bismuth poisoning reported with two deaths


Bismuth deposit on margin of gum adjacent to teeth

The fact that there have been so few cases reported in the last few years, although the bismuth treatment has been used extensively, may indicate that, with improved technic and greater care in its use, the occurrence of this complication has become rare, or else instances of mild intoxication have not been recognized

Dr Beck[2] says, "The occurrence of this accident has deterred many surgeons from employing the bismuth treatment, and since poisoning can be avoided, it would be deplorable that an otherwise useful method should not be employed on this account" That toxic results cannot be entirely avoided is shown by Beck's admission[3] that in 30 per cent of his cases there has been pigmentation of the gums The report of sixty-eight cases with twenty-six fatalities serves to show the existence of individuals who have an idiosyncrasy against bismuth and are susceptible to its absorption with toxic effects

In the case described below, the precautions and technic in the injection of the bismuth paste as advised by Dr Beck were carefully observed and yet poisoning followed, indicating the unmistakable action of bismuth on a susceptible individual

REPORT OF CASE

F D man, aged 22, had been well up to Jan 10, 1916, when he developed an abscess of the left thigh above the knee This was opened at the Cook County Hospital and the patient went home returning in about eight weeks with an abscess of the left hip This was opened, April 19, pus evacuated, and a drainage tube inserted The sinus discharged for about three months July 18, 2½ ounces of bismuth paste were injected into the sinus There was no discharge and the patient went home to see some friends six days later

On the eighth day following the injection, the patient returned to the hospital complaining of soreness of gums and tongue Examination of the mouth revealed a line of bluish-black pigmentation about 2 to 3 mm in width along the border of the gum adjacent to the teeth of the upper and lower maxillae The tongue was swollen, and the pigmentation extended along the under surface of the tongue following the course of the ranine veins On the buccal mucosa, most marked on the right side, were discrete as well as confluent spots of a similar character The glossitis and gingivitis became more severe, and the salivation was so pronounced that the patient lay with his mouth over a basin to catch the flow of saliva He also complained of diarrhea and weakness, but his general condition appeared good The temperature was normal and examination of the blood was negative Urinalysis revealed a heavy cloud of albumin and many granular and hyaline casts

The sinus was irrigated with warm olive oil and the bismuth removed following which the stomatitis subsided, although the pigmentation on the gums and tongue still persist

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[1] Mayer and Baehr Surg, Gynec and Obst 1912 **15** 309
[2] Beck E C Bismuth Paste in Chronic Suppurative Sinuses and Empyema The Journal A M A July 1 1916 p 27
[3] Beck Illinois Med Jour 1909 **16**, 601

A CASE BEARING ON THE FUNCTION OF THE PITUITARY BODY

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The pituitary body consists of two distinct parts, differing in development, in structure and in function In this respect it bears a close resemblance to the suprarenal glands The anterior part of the pituitary is developed from an invagination of the pharynx (Rathke's pouch), it is glandular in structure, and its function is that of a regulator of skeletal growth and sexual development It is possible, moreover, that it may exert some influence on body temperature, for Cushing[1] points out that a rise of temperature follows

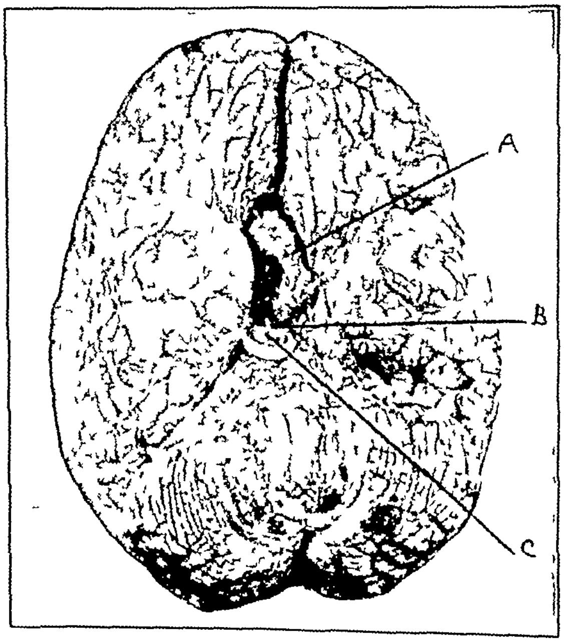

Fig 1—Base of brain showing interpeduncular tumor surrounding infundibular stalk *A* tumor, *B* infundibular stalk, *C* pituitary body

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[1] Cushing Harvey The Pituitary Body and Its Disorders, p 14

injection of extract of the anterior lobe in cases of anterior lobe deficiency The posterior part, separated from the anterior part by the pars intermedia, is developed as a downgrowth from the floor of the third ventricle, shows in its structure traces of its nervous origin, and has a controlling influence over plain muscle generally, and also over carbohydrate metabolism

There can be no question that the posterior lobe, or possibly its epithelial investment (pars intermedia), produces a secretion of great physiologic activity Injections of posterior lobe extracts produce an extraordinary rise of blood pressure, owing to their stimulating effect on the plain muscle of the peripheral vascular system Moreover, the posterior lobe is known to exert a profound influence on carbohydrate metabolism If a condition of hypopituitarism be induced, either by experimental extirpation of the posterior lobe, or as the result of a pathologic process affecting that lobe, the normal process of glycogenolysis is interfered with, sugars are stored in the body, and there is a resultant accumulation of fat In this condition it is possible for a patient to ingest very large quantities of sugar without a glycosuria being induced Such a condition is described as a high sugar tolerance But the question which presents itself is, How does this secretion, whether internal or external, reach the blood stream? It is in the hope that a little further light may be thrown on this question that the present case is described

The histologic appearance of the nonvascular pars nervosa certainly does not suggest that a secretion is absorbed from it directly into the blood stream The only other mode of such absorption, so far as we know, is into the third ventricle, in which case the cerebrospinal fluid would become the vehicle of the active principle Several facts in our possession suggest that this may prove to be the correct answer

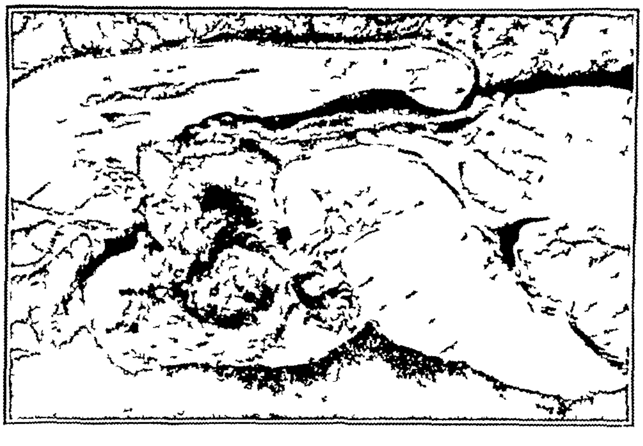

Fig 2 —Sagittal section of brain, showing infundibular stalk emerging from tumor

The infundibular recess of the third ventricle is prolonged for a varying distance into the infundibular stalk, which connects the hypophysis with the tuber cinereum In some animals this prolongation extends right into the posterior lobe, so that any secretion produced by that lobe can readily pass into the third ventricle If in some cases this is the normal course, it is not unlikely that in all cases it is the only course

In the neuroglial network of the posterior lobe, globules, apparently of a colloidal nature, can be seen if a suitable histologic technic is adopted Herring[2] demonstrated that these globules make their way from the pars intermedia through the substance of the posterior lobe toward the prolongation of the infundibular recess of the ventricle, into which they appear to discharge It is highly probable that this colloid represents the active principle of the posterior lobe

Another link in the chain of evidence was forged by Cushing and Goetsch,[3] who showed that injections of the cerebrospinal fluid produced physiologic symptoms similar to those obtained with posterior lobe extract These observers were successful in producing their results with human cerebrospinal fluid, as well as with that obtained from animals Goetsch[4] further found that by placing a clip on the infundibular stalk in animals he could produce a high tolerance for sugars, thus indicating that the route by which the posterior lobe active principle is absorbed had been interfered with

Finally, in the case about to be described, it will be seen that Nature placed a ligature in the form of a glioma around the infundibular stalk, thus cutting off access to the third ventricle, with the result that a high sugar tolerance was produced

History—A well developed boy of average height and weight, aged 10½ years, in February, 1915, began to suffer from slight attacks of frontal headache, occasionally accompanied by vomiting These, however, were never serious enough to prevent him from attending school At the same time he complained to his father that he was able to see only one half of the clock He was seen by Dr Harvey Smith, who found that vision in each eye was normal, and that no refractive errors or structural changes could be detected

Physical Condition—In September, 1915, he again consulted Dr Harvey Smith, now complaining of defective vision The ocular condition was found to be vision, right eye, 20/70 unimproved with glasses, left eye, only very feeble light perception Distinct exophthalmos was present The pupils were larger than normal, and reacted sluggishly to light and accommodation There was less reaction when light was thrown in obliquely from the temporal side No field of vision could be obtained in the left eye In the right eye, temporal hemianopsia existed with reversal of the color fields The retinal vessels were dilated and tortuous, the edges of the disks a little hazy, and the surface of the disks injected These changes were more marked in the left than in the right eye

The case now came under the observation of Dr Chestnut The eye symptoms naturally directed attention to the pituitary region A roentgenogram of the sella turcica was taken, which showed slight enlargement of the sella, but thinning of the bony walls The tolerance to sugar was tested and was found to be markedly increased, there being a negative result to 250 gm. of levulose There was no polyuria, and the urine was normal The systolic blood pressure was 110 Extract of the anterior lobe of the hypophysis was injected, but without producing any thermal response This, together with the absence of skeletal and sexual changes, suggested that the lesion was probably one involving only the posterior lobe

The eye symptoms, probably beginning with bitemporal hemianopsia, the high sugar tolerance, and the apparent enlargement of the sella turcica, all suggested a tumor of the pituitary body, and the patient was referred to Dr Harvey Cushing of Boston, who concurred in the diagnosis Dr Cushing operated on him by the transphenoidal route Oct 29, 1915

At the operation, notes of which were kindly furnished by Dr Cushing, "a soft, translucent struma began to extrude itself from the small incision in the sella floor As much of the growth as was thought justifiable was removed"

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[2] Herring, P T The Histological Appearances of the Mammalian Pituitary Body, Quart Jour Exper Physiol 1908 **1**

[3] Cushing Harvey and Goetsch E Concerning the Secretion of the Infundibular Lobe of the Pituitary Body and Its Presence in the Cerebrospinal Fluid, Am Jour Physiol 1910, **27**

[4] Goetsch E Cushing, Harvey and Jacobson C Carbohydrate Tolerance and the Posterior Lobe of the Hypophysis Cerebri Bull Johns Hopkins Hosp 1911 **22**, 165

Subsequent History—The patient returned to his home two weeks after the operation, and remained well, although with no apparent change in the eye condition, until the evening of November 21 He then had an attack of vomiting, and complained of severe headache Seen by Dr Chestnut on the following morning, he was in a semicomatose condition with a temperature of 102 F, pulse of 100, and evident signs of cerebral irritation and increased intracranial pressure He remained thus all day, but during the night had several convulsions, and sank into a condition of coma with modified Cheyne-Stokes breathing Death occurred on the morning of November 23

Postmortem Examination—Permission was obtained for examination of the head only The cranium was not unduly thinned There was no flattening of the cerebral convolutions, nor any excess of cerebrospinal fluid The sella turcica was a little wider than usual, but of normal depth The pituitary body appeared' normal, and lay free in the sella It was removed together with the brain On the inferior surface of the brain, in the interpeduncular space, and apparently growing from the region of the floor of the third ventricle, there was a large, soft, grayish mass, which was at first mistaken for a tumor of the pituitary body The left optic nerve was embedded in the mass But the most important indeed, the essential feature of the case was the fact that the infundibular stalk was completely surrounded by the tumor, passing right through it, and being apparently constricted by it It was as if some ingenious experimentalist had placed a ligature round the stalk in order to determine the effect of such a procedure The involvement of the stalk was even greater than appears in the accompanying illustration On removing the brain and inspecting the floor of the sella turcica, one could not but admire the precision and perfection of the operative approach The clean oval opening lay in the very center of the fossa, and exactly underneath the pituitary body

Microscopic Examination—The tumor is of an open reticular structure In the meshes of the network there are considerable accumulations of hyaline material The cells, which are large and round or oval, show in places a definite syncytial arrangement Here and there are blood spaces, showing marked dilatation and engorgement Specimens stained with phosphotungstic acid hematoxylin show coarse neuroglia fibers There is no sharp line of demarcation between the tumor and the brain substance The growth is an example of a glioma Except for some increase in the number of eosinophil elements, the pituitary body shows no evident abnormality

SUMMARY

1 The patient displayed symptoms of pituitary posterior lobe deficiency, in addition to pressure "neighborhood" symptoms

2 There was no evident pathologic lesion in the pituitary body itself

3 A tumor encircled the infundibular stalk, thus interfering with any communication which may normally exist between the posterior lobe and the third ventricle

4 It seems not unreasonable to regard this case as an additional argument in favor of the theory that the secretion of the posterior lobe of the pituitary passes by way of the infundibular stalk into the third ventricle

INNOMINATE ANEURYSM WITH RUPTURE

REPORT OF A CASE WITH TUBERCULOSIS OF ADJACENT TISSUES

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The arteries usually affected by aneurysm are, in the order of frequency of involvement, the thoracic aorta, the popliteal, the femoral-iliac, the carotid, the subclavian, the innominate and the axillary[1] Aneurysms of the innominate are in themselves sufficiently rare to warrant recording their occurrence The case about to be described presents, however, two additional features of unusual interest (*a*) tuberculous involvement of the tissues adjacent to the arterial wall, and (*b*) external rupture of the aneurysm Innominate aneurysms very seldom fill with clot and heal spontaneously More often they gradually increase in size They seldom perforate into the trachea, pleura, mediastinum or a vein Still more rarely do they perforate externally[2]

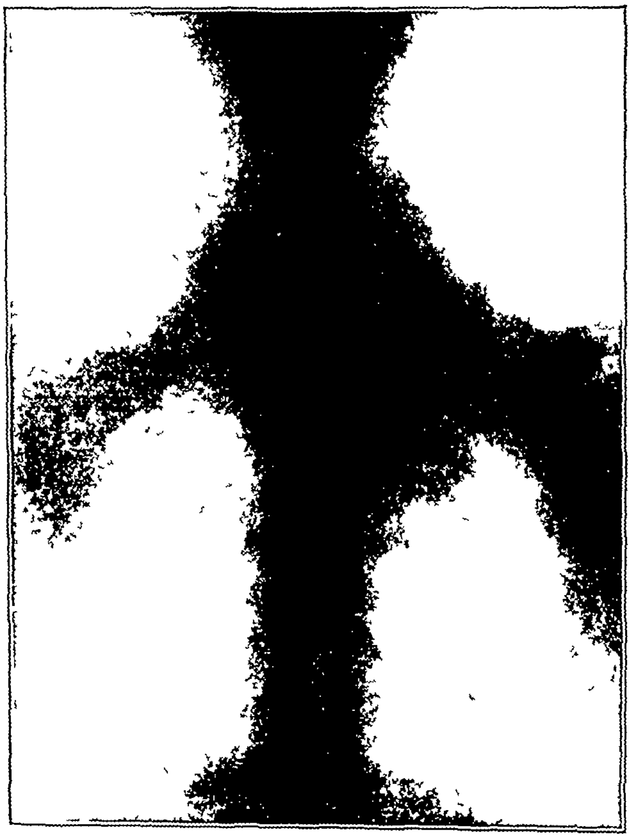

Fig 1—Roentgenogram taken in October, 1911 The enlarged innominate gives a definite shadow It was thought that the aorta too, was involved, the necropsy disproved this

Tuberculous disease of arteries is in itself rather a frequent lesion, vessels being affected by inoculation with bacilli carried to them from distant points, or by direct extension of the process from adjacent foci Numerous cases have been reported as proof of the former method In some of them the arterial disease is a part of a general, acute miliary tuberculosis, in others there is a chronic tubercle of a large artery, such as the aorta, this being occasionally followed by an acute miliary tuberculosis, presumably arising from the chronic lesion[3] The second method is by far the more common, and is often seen in the involvement of arteries in tuberculous lungs Here the process is one of destruction of the external coat and, if the process is a rapid one, aneurysmal dilatation, with occasional rupture and fatal hemoptysis, may occur The process, however, is usually and fortunately a more chronic one, so that from the beginning the inner coat reacts, thickens, and eventually, with or without the aid of a thrombus, leads to obliteration of the lumen Ultimately the thrombosed area may undergo caseous degeneration [4]

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[1] Osler Aneurysm the Principles and Practice of Medicine Ed 8 1912 p 849

[2] Michanowsky Das Aneurysma der Arteria anonyma und seine Therapie Inaug Diss Berlin 1910

[3] Krumbhaar Solitary Tubercle of the Aorta Occurring in a Case of Generalized Tuberculosis Bull Ayer Clin Lab Pennsylvania Hosp 1908 No 5 p 66 (Bibliography to 1908 given)

On the other hand, tuberculous disease of large arteries by direct extension is rare, probably because of the inherent anatomic resistance offered by the elastic fiber present Even in cheesy tuberculous foci it is well known that elastic fibers resist the longest Furthermore, tuberculous glands seldom extend beyond the capsule, and rather tend to mat and form a big mass, with the production of periglandular fibrosclerotic tissue [5]

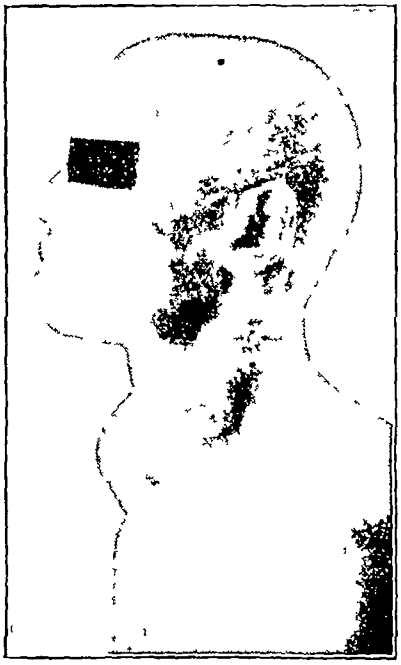

Fig 2 —Side view of patient showing tumor mass arising on the right side but extending to the median line

Tuberculous disease of large arteries being rare, it naturally follows that in the production of aneurysms, tuberculosis can play only an insignificant part As a matter of fact, there is but one case on record in which tuberculosis seems to have been the etiologic factor Curiously enough, in this case the innominate was the artery ~~affected~~ [6] Here the patient was known to have tuberculosis There were no distinct signs of aneurysm, no marked dulness, no pulse differences, and a recurrent paralysis was ascribed to the tuberculosis The patient died of miliary tuberculosis Postmortem examination revealed an innominate aneurysm the size of an egg, almost filled with laminated thrombi Histologic study showed tuberculous disease of the vessel wall, the latter having led to the aneurysm formation

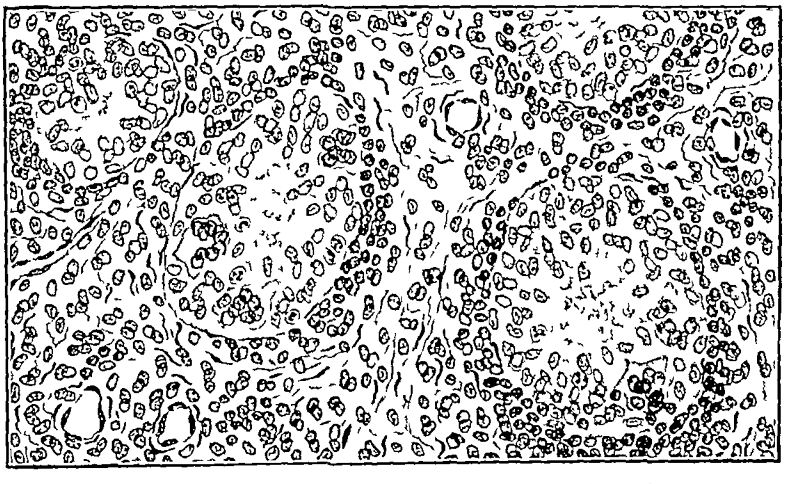

Fig 4 —A drawing of a microscopic preparation made from a biopsy taken ten days before death The tissue was fixed in 10 per cent dilution of liquor formaldehydi, mounted and sectioned by the celloidin method, and stained with hematoxylin and eosin In all three complete miliary tubercles are visible and a part of a fourth The centers of the lesions have undergone caseous degeneration giant and epithelioid cells appear more toward the periphery and the outermost division of the tubercles is composed largely of small round cells

In the following case the aneurysm was undoubtedly the result, not of a tuberculous process, but of syphilitic disease There was a history of untreated syphilis, and the finding of a positive Wassermann reaction There was history of pain over a period of two years before the mass appeared This pain was not of such a character as could be referred to lung or pleura Furthermore, sections made from the arterial wall showed, in spite of its close proximity, no involvement by the tuberculous process

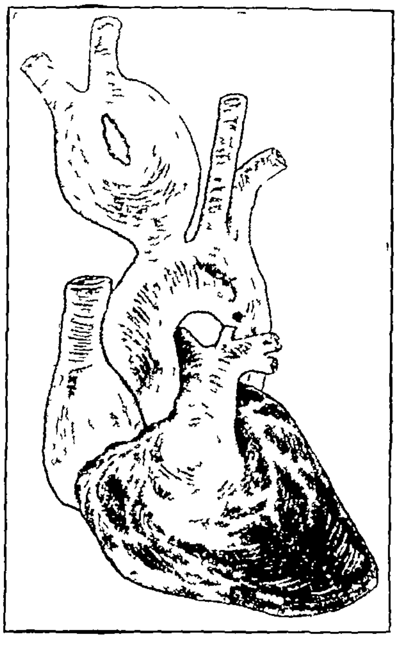

Fig 3 —A drawing of the heart and a portion of the large vessels passing off from it The superior vena cava has been removed in part to facilitate the delineation of the large fusiform aneurysm of the innominate artery The rent in the aneurysmal wall which communicated with the sinus that opened on the cutaneous surface of the body above the inner end of the right clavicle is also shown

REPORT OF CASE

History —F C, man, negro, aged 42 first sent for me on the evening of June 12, 1911, desiring relief from precordial pain He told me that he had an aneurysm and that this diagnosis had been confirmed by Roentgen examination six months previously (in December, 1911, at the Presidio)

For two years prior to this time he had suffered from occasional attacks of pain at first rather localized to the region of the second right costal cartilage, but later of a sharp, lancinating character all through the right side of his chest and at times in the neck and down the right arm and at times he could scarcely raise it March 1, 1911 he had noted the presence of a mass above the inner end of the right clavicle He had no dyspnea except for a short time at the onset of the trouble, no cough, dysphagia or hoarseness

The patient was well developed and nourished, 5 feet 7 inches in height, and weighed 155 pounds He was comparatively comfortable the following morning, and nothing of importance was noted other than what was unmistakably an aneurysm Except for pain subjective symptoms were absent The tumor, which was small, was visible above the sternum, extending just to the right sternoclavicular junction At this time it was thought that the innominate was involved (The examination was not complete and further observations were discouraged by the patient, who felt that more relief was obtained from "Dr Munyon's X X X rheumatism and indigestion cure" than from iodids and from the morphin given for pain)

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[4] Roger Brouardel and Gilbert Nouveau traite de medecine et de therapie **24**, 143

[5] Schlesinger Tuberkuloses Aortenaneurysma und Miliartuberkulose Ztschr f Tuberk, 1914, **23**, No 5

[6] Weinberger Mitt d Ges f inn Med u Kinderh 1916

In 1890 the patient had had a venereal ulcer for which he had taken medicine for six weeks No symptoms or signs of syphilis had ever followed He had been married ten years, his wife a Filipino, had never been pregnant He had malaria in 1898 in Cuba and tonsillitis in 1909 He was in the United States Army from 1892 to 1900 and then in the quartermaster's department for four years He had never used liquors or tobacco

He was again seen, Aug 3 1911 when he came to have an application for a pension signed He permitted examination of his neck which showed but a very slight increase in size, and stated that he was still taking the XXX and felt fine He was warned as to the danger he was incurring by engaging in active exercise but he evidently paid little heed to the advice He was again seen, October 2, having been several days in bed

Examination—The tumor had increased considerably in size, it bulged and pulsated to such an extent that, with the thinning of the overlying tissues, it seemed almost ready to break through the skin The apex beat of the heart was not heaving, in the fifth space, in midclavicular line A soft systolic murmur replaced the first sound A somewhat rough systolic murmur was audible over the aortic area as well as over the tumor mass The pupils were equal and small, and reacted to light and accommodation The lids were tremulous The skin, sclera and mucous membranes were negative There was no jaundice The tongue throat and gums were negative The thyroid was negative The posterior cervical glands on the left side were palpable, also small left epitrochlear The lungs were negative The abdomen was level symmetrical soft and tympanitic throughout There was liver dullness, fifth rib to costal margin in midclavicular line, it was not palpable The spleen and kidneys were not palpable The penis testes, back and extremities were negative The reflexes were normal

The patient was induced to enter the University Hospital, October 19, where he remained for six days Figures 1 and 2 are from pictures taken during this period Blood examination revealed the Wassermann reaction weakly positive, hemoglobin from 88 to 60 per cent red blood cells 4 800 000 white blood cells, from 9 000 to 7,000, polymorphonuclears, 72, large mononuclears 8 small mononuclears, 18 eosinophils, 2 The systolic blood pressure while the patient was in the hospital was October 19 left 140 mm Hg, October 24, right 94, 1 104, October 26, right 102, 1 114 Urine examination was negative The fundi showed no abnormalities The lids were tremulous

Diagnosis—It was believed that the subclavian was the vessel most involved, and this opinion was shared by all who saw the patient The roentgenogram however, showing apparent involvement of the innominate and even possibly of the aorta frightened off even the most daring of my surgical friends one of whom was at first aching to attempt a surgical cure Attempts to induce clotting, by introducing silver wire, did not appeal to the patient who wanted me to stick in some sort of needle and let out blood, his idea of an aneurysm being that it was a walled off pocket of blood easily drained

After going home, October 27, the patient was pretty comfortable for a while having a dragging pain only when recumbent on either side This became more severe, seemingly aggravated by a gradual softening of the entire mass but relieved by lying flat on his back November 10 on arising in the morning the patient removed the cotton gauze dressing with which he kept the mass covered, and found that perforation of the skin had occurred, then there escaped at least a quart of thin yellowish fluid this being attended by a sense of relief and with no shock There was no blood in the discharge The patient was seen on the following day, and on November 15 was again taken to the hospital where the following notes were made

General condition about the same as on leaving hospital in October Shoulder feels stiff and sore, patient has little use of right arm Practically no pain Weight 138 pounds Hemoglobin 84 per cent , red blood cells, 4,000,000, white blood cells, 9,200, polymorphonuclears, 68, large mononuclears, 10, small lymphocytes, 22 Urine negative

November 20 Since the patient entered the hospital the wound on the neck has been carefully cleansed daily with hydrogen peroxid and packed with small gauze strips with a small amount of camphor-phenol The purulent discharge seems to be decreasing and granulation occurring rapidly Smears were taken today, also a small section of wall of ulcer The tissue is not sensitive and not highly vascular

November 22 Yesterday morning at 5 a m the intern on service summoned to see the patient, who was reported as pulseless after a large hemorrhage found that the patient had been to the water closet a short time previously, and had just fallen asleep when he was awakened by a gush of blood from his neck He was lying in a great pool of blood, on his right side The pulse was weak, but clearly made out Morphin sulphate, 0 015 gm, was given hypodermically The hemorrhage was pretty well stopped of itself at that time, and after preparations had been made for a possible secondary hemorrhage, the dressing was removed and the sinus closely packed with iodoform strips The patient was dizzy, and complained of great thirst He was given plenty of fluids, but no stimulation

November 23 It had been intended to leave in the packing for sixty hours, if possible, but this afternoon at 4 o'clock the patient's temperature rose to 39 C (102 2 F) The packing was removed, the sinus cleaned, and more tissue from the granulating surface removed for injection into guinea-pigs and for staining for tubercle bacilli (See pathologic report below) The artery could be seen pulsating in the floor of the sinus It was covered by a large slough which it seemed best not to disturb The patient suggested that be could at times feel the escape of air in the sinus when he took a full breath The process was undoubtedly in close apposition to the right apex The pulsation seen was probably from the right subclavian artery

Of the tuberculin reactions, the von Pirquet was positive, the Calmette questionable, or very weakly positive if at all, and the Moro negative

November 24 This morning the sinus was unpacked, filled with collargol solution, 5 per cent, sterilized by boiling, and roentgenograms taken The mediastinum was taken obliquely to miss the heart shadow if possible, and an anteroposterior view was taken The patient's condition was good The blood picture showed little effect from hemorrhage Late this afternoon the patient s temperature rose to 39 C (102.2 F) (This seemed to be a part of the febrile course that had been present since the patient entered) He had been constipated to a marked extent, but no more distress was noted in his neck

November 30 The patient s sinus was granulating very rapidly and had decreased to one third its former size It was dressed three times a day The patient complained of increasing tenderness in the right shoulder, extending down inside of the arm to the elbow He believed there was slight swelling of the forearm, though I could not make it out The glands of the axilla were much enlarged and very painful Tincture of iodin and an ice bag were applied locally

Previous to this time the patient had received three injections of a mercury preparation intravenously (November 16 18 and 20) Inunctions of mercury and potassium iodid were given November 25 to 30, inclusive

December 1, 1911 At 3 55 a m the patient had a large hemorrhage further severe ones occurring at 4 30 6 and 7 a m, at which time 700 c c of salt solution with 10 minims of epinephrin were administered intravenously

The patient died at 7 30 a m

Pathologic Report—Necropsy was performed December 1 Rigor mortis was complete Despite the natural pigmentation of the skin, it showed a marked pallor The pupils were regular in contour, moderately and equally dilated Palpable lymph glands were slightly enlarged There were no visible skeletal deformities An irregular sinus opened above the inner end of the right clavicle and led downward and medially, its external orifice measured about 4 by 3 cm., the long diameter being approximately parallel with the upper border of the clavicle. In the neighborhood of the sinus, the tissues showed a considerable degree of tumefaction.

When the thorax was opened and the lungs retracted, a large fusiform aneurysm of the innominate artery was visible. It was firmly adherent to the tissues surrounding the sinus. The heart and large vessels were removed *en masse*. In the aneurysmal sac at its upper and anterior aspect there was a rent which was continuous with the sinus opening above the clavicle. Through this rent an underlying thrombus appeared. The aneurysm measured 7 by 5 cm. and involved the innominate artery throughout its entire extent, but did not include the subclavian or common carotid arteries. The thrombus was of such size as almost to completely fill the cavity of the aneurysm, was easily removed, being attached to the wall of the vessels by very thin adhesions, and on gross section was found to consist of fibrin arranged in a distinctly lamellated manner. The shape and loose attachment of the thrombus was of such a nature that it must have acted during life very much in the fashion of a ball-valve. The chambers of the heart were practically free from blood save for a few small clots entangled in the meshes of the trabeculae corneae. Both the thoracic and abdominal divisions of the aorta evidenced a mild degree of patchy atheroma. The cardiac valves were free of microscopic pathologic changes, which was also true of the circumvalvular and remaining mural endocardium. The foramen ovale was not patent. The coronary arteries were in good condition. The left ventricle was somewhat hypertrophied.

The parenchyma of the apex of the right lung was contracted by several fairly large cicatricial processes, and the visceral pleura of that region as well as the adjacent parietal pleura were studded with miliary tubercles. The tuberculous involvement of the parietal pleura on the right side extended as far down in the midaxillary line as the upper margin of the fourth rib and above it invaded the perisinusoidal areas quite out to the cutaneous limitation of the opening. The left lung was clear of tuberculous lesions as well as the left pleura in its entirety.

Aside from varying moderations of exsanguination the abdominal organs and the external genitals showed nothing of any special pathologic importance. The brain and cord were not removed.

Additional Notes.—Ten days before the patient's death a piece of the wall of the sinus at its external opening was removed for the purpose of microscopic examination and inoculation experiments. The sections revealed typical miliary tuberculous lesions. A portion of the biopsy was triturated in sterile normal salt solution, and of the resulting fluid, 1 c.c. was injected subcutaneously into each of two guinea-pigs, right thigh, ventral aspect below the inguinal glands. Twenty-one days later the animals were etherized to the point of death and smears made from the enlarged and broken down glands of the inguinal regions above the points of inoculation. Stained by the acid-fast method, these showed numerous tubercle bacilli.

Dried Agricultural Products.—An industry that is sure to be developed to a greater extent than at present, in the opinion of the *Scientific American* (June 24, 1916), is the drying of agricultural products, such as potatoes, and aqueous industrial residues, such as the products of the sugar factories and the breweries. In France, it is said, fresh beets are dried, and three beet sugar works dry the exhausted beet pulp. Another industry in France is the making of "sugar flour" from fresh beet pulp by a process using increasing temperatures up to 120 C. A flour is produced which has the sweetening property of sugar to a certain extent, which can be used in all instances when the sugar it not required to be pure, as in breweries, for special breads, for feeding stock, etc. It is said a ton of beets produces 500 pounds of flour which sells for $2 a hundred. The drying of potatoes will be of especial practical value on account of the difficulty of keeping and handling them in their raw state. Damp grain may also be dried.

BERIBERI

REPORT OF CASES *

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Case 1.—*History.*—K. Saito, a Japanese man, aged 44, had been in the United States for twelve years engaged in domestic work. He had not returned to Japan in that time. His family history had no medical significance. His complaints on admission to the medical clinic were headache, palpitation, digestive disturbances and insomnia. He had no history of previous acute disease and had always been in good health until five months previously, when he took cold and the present symptoms developed. Three years before he had been operated on for a fistula in ano which was cured and had not recurred. He had had no digestive disorder before the condition for which he now sought relief. His weight had not varied from 155 to 160 pounds for five years past.

Physical examination showed a middle aged Japanese, fairly well developed and nourished. His pupils were equal, medium, regular and reacted to light and accommodation. His teeth were in poor condition with much caries and pyorrhea. The gums were spongy. The pharynx and tonsils were negative. No abnormality was detected in the lungs. The heart showed some increase of transverse cardiac dulness from a half inch to the right of the right sternal border to a half inch outside the nipple line in the fifth left interspace. The impulse could be felt over the entire precordium, but there was no murmur or thrill. The area of the great vessels was not perceptibly widened to percussion. The radial pulse was equal, regular, 86 and the arteries thickened. The systolic pressure was 165 mm. (Faught).

The abdomen was symmetrical, protuberant and very tympanitic. Hepatic and splenic dulness were not increased, nor were these organs palpable. The extremities showed a deep tense pretibial edema. The knee jerks were absent and the Achilles jerk decreased. There was a sensation of numbness in the legs, but no anesthesia or muscular weakness could be detected. Some soreness was complained of over the nerve trunks of both upper and lower extremities. The patient said he had considerable numbness and tingling of the legs and a cap-sensation of numbness over the cranium. There was no motor or static ataxia. Some hyperesthetic areas were found on the sides of the chest and on the thighs. There was no disturbance of temperature sense. The nervous system findings were confirmed in the neurologic clinic.

Special examination of the eyes showed no refractive error or lesion of the fundi. There was moderate puffiness under the eyes. The patient stated that his diet consisted largely of milled or polished white rice, in fact, that it constituted the major portion of his food and had for many years. He had no venereal history and no evidence of having had venereal infection. A second examination of the eyes showed fundi and visual fields normal. Ears, throat and nose presented no abnormality. The clinical course was one of steady improvement both subjectively and objectively under a treatment of rest in hospital, where he was referred to the clinic ward for observation, mixed diet and mild tonics. He had several crops of boils which healed with no ill effects. Temperature, pulse and respiration were always within normal limits.

Laboratory Findings.—Blood: Average blood count gave 80 per cent. hemoglobin (Dare), white cells, 5,600; polymorphonuclears, 64 per cent.; lymphocytes, 26 per cent.; mononuclears, 3 per cent.; eosinophils, 5 per cent., and transitional cells 2 per cent. Stool: No occult blood. Practically normal digestion. Numerous clonorchis ova. Urine: Neutral, specific gravity 1.020, very slight trace of albumin, no sugar, a few hyaline and finely granular casts, epithelial cells and mucus. Wassermann reaction on blood serum was negative. Ten days after a provocative intravenous injection of 0.5 gm. arsenobenzol, the Wassermann reaction was still negative. Roentgenogram of the bony spine showed no abnormality.

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* Presented before the Cooper Clinical Society, San Francisco, May 8, 1916.

Spinal fluid At the first examination, the Wassermann reaction was suggestive of positive (1, + + +, 0 5, + + +, 0 1, + + — —, 0 025, — — —) 1 polymorphonuclear cell per cubic millimeter Nonne Appelt phase 1, very slightest trace Noguchi butyric acid reaction, negative In view of these findings the patient was given 0 5 gm arsenobenzol intravenously, and ten days later the spinal puncture was repeated On second examination the Wassermann reaction was negative in all dilutions One polymorphonuclear leukocyte was found per cubic millimeter Nonne-Appelt phase 1 and the Noguchi reaction were negative The colloidal gold reaction was 0, 0, 00000000 Gastric contents Ewald test meal, removed by tube in one hour, was well digested, no blood, a little mucus, occult blood, + + Total acid, 30 Free hydrochloric acid, 12 Phenolsulphonephthalein excretion (1) First hour, 45 per cent, second hour, 40 per cent, total 85 per cent (2) First hour, 40 per cent, second hour, 20 per cent, total, 60 per cent

This case on summary presents an interesting combination of findings The diagnosis of beriberi is supported by the cardiac palpitation and enlargement, with pretibial edema, exposure to beriberic conditions an afebrile course, and a peripheral neuritis There was undoubtedly present a low grade chronic nephritis which, however, did not seem severe enough to account for the edema The high phenolsulphonephthalein excretion, moderate blood pressure, and absence of other evidence of marked renal insufficiency point rather to beriberi as the principal pathologic condition The diagnosis must include alveolar pyorrhea, cardiac hypertrophy, and arteriosclerosis of a moderate degree

The clonorchis infection would help account for the pretibial edema, as it was evidently of long enough duration and intensity to produce an eosinophilia Presumably the patient contracted the clonorchis at least twelve years before in Japan The fluke would account, too, for the digestive disturbances

As for the seriousness of the clonorchis infestation, opinion differs In sections of China in which from 12 to 20 per cent of the population are infected, the disease is rather disregarded While the fluke cannot be eradicated, it is not considered a particularly dangerous parasite Clonorchis ova have been found in the abdominal lymphatics, and the fluke inhabits the bile duct system as well as the duodenum It does without question produce various gastro-intestinal disturbances, and the question of a toxin must be considered, especially if, as in this case, the eosinophilia and in any part the edema, are to be ascribed to the parasite The further possibility of egg embolism is to be kept in mind Dr Herbert Gunn states that he has found about 14 per cent clonorchis infection in the routine examination of a large series of orientals in San Francisco Cases are not infrequent in the Stanford medical clinic

Case 2—L F S, a Chinese man, aged 42 came to the medical clinic complaining of tiredness and numbness of the legs with frequent urination and some irregularity of the bowels The condition was of gradual onset, was progressive and was first noticed five or six months previously The family history was of no medical significance except that the father had died from pulmonary tuberculosis at the age of 73 There was no history of previous illness beyond frequent colds and much headache There were no symptoms referable to the respiratory, circulatory or gastro-intestinal tracts There was no history or evidence of venereal disease

Up to the time of admission to the clinic, the patient had frequent nocturia and six or more urinations in the daytime His habits were abstemious He had been in the United States for thirteen years except for a period of sixteen months ending six months previous to admission, during which time he was visiting at his home near Canton China

The immediate illness consisted solely of numbness and weariness of the lower extremities, with headache, frequent urination, cold hands and feet, and at times constipation

Examination revealed the patient rather pallid, moderately developed, and somewhat below the average stature The teeth showed marked pyorrhea and caries The pupillary reflexes were normal The chest showed sunken supraclavicular fossae with corresponding dulness There were no rales and no change in fremitus, voice or breath sounds The cardiac dulness was not increased, and the sounds were of good quality and free from murmurs After vigorous exercise a slight irregularity was noted The radial pulse was equal, regular and of moderate tension The abdomen showed no abnormality There were marked cyanosis and some clubbing of the fingers A general adenopathy was present The patellar reflexes were greatly exaggerated At first a tentative diagnosis was made of underlying pulmonary tuberculosis with a secondary anemia The laboratory examinations showed a moderate anemia with an eosinophilia of 5 per cent Occult ova and trichocephalus ova were found in the stool The sputum had no tubercle bacilli It was thought that there might be a further helminth infection which would more adequately account for the symptoms than trichocephalus alone With this in view, thymol was administered in the fashion recommended by Stiles, and the stools were examined, but no further ova or parasites appeared, although the occult blood disappeared

At the time the thymol was administered, it was observed that there was definite but not very noticeable edema of the ankles, and especially of the pretibial regions of both legs Also there was numbness of both legs from the midthigh down Tactile sensation was unimpaired Ankle clonus, the Babinski and Kernig reactions were negative The knee jerks were constantly exaggerated No paresthesia was observed The diagnosis of beriberi was now considered The patient was referred to the neurologic clinic with a tentative diagnosis of peripheral neuritis, which was confirmed The tendon reflexes were all lively except the Achilles, which could barely be elicited The Oppenheim reflex was negative The abdominal and cremasteric reflexes were normal Sensibility to heat and cold was normal, but with some diminution of acuity from the midthigh down No definite area of anesthesia could be mapped out, and there was no disturbance of the deep reflexes Except that a watch could not be heard on contact, there was no disturbance of the cranial nerves The neuritis while not prominent, was none the less definite

In the complete absence of albuminuria and fever, and the absence of any other intestinal parasite except the trichocephalus in small numbers, it was felt that the positive features of exposure to beriberic conditions, a peripheral neuritis, a slight disturbance of the cardiac rhythm and a pretibial edema justified the diagnosis of larval beriberi It is to be noted that no other cause for the neuritis could be found, alcohol and arsenic being ruled out among the first A latent pulmonary tuberculosis could not be excluded, but if present, was certainly not active and not sufficient to account for the symptoms Neuritis in tuberculosis is usually a late symptom, and such a cause can easily be excluded here It is usually stated that eosinophilia does not occur in trichocephalus infection, but it is none the less not infrequently seen If eosinophilia in any sense represents an anaphylactic reaction to helminth infection or helminth proteins, it is hard to see why this worm out of many should be exempt

It is authoritatively stated that in beriberi the characteristic neuritic symptoms are especially displayed by the vagus and vasomotor nerves, the former being associated with the very characteristic cardiac lesions and the latter with the edema Cardiac failure is the usual termination if recovery does not take place, and it is no unusual thing to see sudden and quite unforseen acute dilatation of the heart in patients who even a few minutes before were apparently comfortable It is hard to relate the entire cardiac pathology to the vagus, and it seems more reasonable that there is some local toxic influence on the heart Before the cardiac irregularity was discovered in the case here presented, it was felt that the apparently normal heart was distinctly against the diagnosis of beriberi

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FILARIASIS

REPORT OF TWO CASES IN THE DISTRICT OF COLUMBIA, AND ANALYSIS OF THE CASES REPORTED FOR EASTERN NORTH AMERICA *

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The term "filariasis" as here used is restricted to infections with *Filaria bancrofti* or at least with worms having embryos apparently of that type Most of these infections in the northern states have occurred in persons who have acquired the parasite in the tropics and are consequently lacking in the interest which indigenous diseases possess As an examination of the published cases, however, shows that, excepting two large series reported from Charleston, S C, less than fifty have been recorded for eastern North America, one may perhaps be pardoned for reporting two other imported cases, especially as the disease may become endemic in this latitude, if it not already is

Following a consideration of these two cases is a summary of what, it is hoped, are all of the cases previously reported, with a discussion of each case or group of cases As compilers are only human, probably recorded cases in eastern North America have been inadvertently overlooked Only cases in which adult or embryo worms were actually found have been considered

It is not to be supposed that the 142 cases reported for eastern North America represent anything like the incidence of filariasis in this country They are more apt to represent careful diagnosis and interest on the part of observers to report them Judging by the large number of indigenous cases found in Charleston, S C, one would expect them to be equally numerous in other southern cities, yet but few have been reported in them In going through the *Index Medicus,* the indexes of THE JOURNAL, the International Catalogue of Scientific Literature and the cards of the Zurich *Concilium Bibliographicum* in looking for published records, I made no special effort to search for reports of filariasis on the Pacific coast Two published records, however, show it to be present there Wellman, von Adelung and Eastman[1] report filariasis as constantly present about San Francisco Bay, and describe some experiments with feeding mosquitoes on an infected Japanese, von Adelung[2] reports a case of chyluria in a Japanese, with embryos present

As previous writers and the standard textbooks deal with the morphology, the life history, etc, of *Filaria,* and as these facts are generally well known at the present time, no reference to that aspect of filariasis will be made here Only an analysis of the cases previously described in eastern North America and the two here recorded will be attempted

REPORT OF CASES

CASE 1—Colored medical student at Howard University, in 1902, between 20 and 25 years of age, native of Trinidad, West Indies

This case was accidentally discovered by Dr Paul Bartsch in teaching histology At that time the medical course at Howard University was given at night, and in the routine study of students' fresh blood the moving embryos were found This student was well developed, as shown by anthropometric measurements taken by Dr Bartsch, and had no chyluria or enlarged glands He appeared mentally listless and was unable to complete his medical course on that account When first coming under observation he had been away from Trinidad for three years, and was under Dr Bartsch's observation for one and a half years when he left the medical school and was lost sight of Embryos were present in his blood when last seen, that is, four and a half years since leaving the tropics The largest number of embryos found in a single drop of blood was seven, or about 150 per cubic centimeter in blood obtained after 10 p m At 8 p m an occasional embryo was found in a drop, sometimes none, never more than one During the day embryos were never found in drops examined, although many attempts were made to find them At that time Rivas and Smith's method of drawing a few cubic centimeters from a vein and placing it in dilute acetic acid solution was unknown In petrolatum ringed preparation of drops of blood, Dr Bartsch has observed the embryos moving after a lapse of twenty-two days The listless condition of this patient may have been due to a simultaneous infestation with hookworms, but his feces were not examined for them I doubt if filariasis was the cause of it

CASE 2—Patient of Dr George N Overton who suspected filariasis, and in conjunction with Dr Walter Van Swearingen made a positive diagnosis by a night examination of the blood Dr Overton has kindly furnished blood from this patient for the past three years for use in my classes in clinical microscopy Living embryos from this case were exhibited[3] at the Biological Society of Washington, March 25, 1916

The patient is a bright, intelligent colored girl, aged 19 years, born in British Guiana She has lived in Panama, whence she came to Washington in 1911, five years ago, in order to attend the Armstrong High School where she was graduated this year Her family history is negative except for a sister who has filariasis (diagnosed by symptoms), now living in British Guiana Eight years ago while in British Guiana, she first noticed swelling of the right leg, later attended with intense pain and a "drawing" sensation of the limb, with headache, fever and chills, often she would retire feeling well only to be awakened with these symptoms, walking or any vigorous exercise would precipitate an attack During these attacks there appeared a large lump in the right inguinal region which would slowly travel down the thigh, then to the leg and finally disappear in the region of the ankle These attacks would number about three a month lasting about one week She received medical treatment at Demarara and Panama with negative results In 1911 she came to the United States, and was soon after attacked in usual way Three years ago she came under Dr Overton's care and the positive diagnosis of filariasis was made This patient's blood has been examined only at night, from 9 to 10 p m, and shows from one to three or four embryos in each drop, this is about 20 to 100 embryos per cubic centimeter Aside from the embryos and an eosinophilia of from 10 to 15 per cent, her blood picture is normal The treatment given by Dr Overton has been local applications of ichthyol and iodin to the inguinal region, thigh, and leg, and a course of Fowler's solution and later of Donovan's solution Under this treatment the local and systemic symptoms cleared up, but the embryos still persist in the blood Continued residence in the temperate zone and the tonic effect of the treatment tried are probably responsible for her improved condition I do not believe the treatment has had direct effect on the adult worms I found as many embryos in the blood this year as I did three years ago The contrast in mental picture between this case and the preceding listless patient of Dr Bartsch is marked

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* Because of lack of space this article is abbreviated in THE JOURNAL A synopsis of all the cases heretofore reported in eastern North America will appear in the author's reprints A copy of the latter will be sent by the author on receipt of a stamped addressed envelope

[1] Wellman, Creighton von Adelung Edward, and Eastman, Finley M The Relation of Mosquitoes to Filariasis in the Region of San Francisco Bay THE JOURNAL A M A, July 16 1910, p 217

[2] Von Adelung, Edward California State Jour Med, 1911 9, 27

[3] Lyon, M W, Jr Science, May 26, 1916 p 762

COMMENT

The source of infection in both cases was undoubtedly the tropics The possibility of filariasis being spread from cases imported into this latitude must not be lost sight of Mr Frederick Knab of the Bureau of Entomology informs me that what is probably the important intermediate host in the spread of *Filaria bancrofti,* the mosquito known as *Culex quinquefasciatus* Say (formerly *Culex fatigans* of authors, also called *Culex pipiens* by Cuban authors and *Culex ciliaris* by Manson) is abundantly found in Washington during the late summer It seems not unlikely that the summer temperature conditions in this latitude are suited to the development of the embryos into infective forms That this actually has happened is perhaps shown by Barnes'[4] Washington case, by Slaughter's Alexandria, Va, cases and by Dunn's[6] Philadelphia case According to Mr Knab the known range of *Culex quinquefasciatus* is as far north as Washington, D C, St Louis, and San Francisco It has not been recorded in either Baltimore or Philadelphia, but Mr Knab thinks there are no climatic reasons why it might not be found in those cities

The possibility of infected mosquitoes being imported with bunches of bananas or other tropical fruits, as suggested by Johnstone[7] in reporting a possible Chicago case, and thus spreading filariasis beyond its endemic zone, should be considered Mr Knab, however, thinks this is a rather unlikely manner of carrying *Culex quinquefasciatus* On the other hand, he believes there is considerable likelihood of infected female mosquitoes traveling from the tropics in the cabins or elsewhere on ships, and thus infecting individuals outside of the endemic zone *Culex quinquefasciatus* is a house-inhabiting mosquito, and might readily be found in the rooms of vessels There seems to be no reason why they might not also travel in the coaches of passenger trains from an endemic center like Charleston to more northern cities

SUMMARY

Two imported cases of infection with *Filaria bancrofti* are reported for the District of Columbia

Including these, 142 cases have been reported in eastern North America, 7 of which are doubtful records One hundred and four acquired their infection in the United States, 28, in the West Indies or in South America, 1, in Egypt, 2, unknown but probably in the United States

Distributed by sex and race, the 135 positive cases show white males, 25, colored males, 38, males, race not stated or inferable, 12, total males, 75, white females, 21, colored females, 37, females, race not stated or inferable, 2, total females, 60, total white, 46, total colored, 75, race not stated or inferable, 14 The somewhat greater frequency of infection in males is probably associated with their seeking medical advice for involvement of the scrotum The rather marked frequency of infection in the colored over the white is probably associated with the fact that in the large Charleston series the colored patients come from a class more apt to be bitten by mosquitoes Excluding the Charleston cases the figures are white males, 11, colored males, 4, males, race unknown, 12, white females, 5, colored females, 2, females, race unknown, 2, total males, 27, total females, 9, total white, 16, colored, 6, race not stated, 14 The ages of the patients varied from 6 years to old age

Pathologically the cases show no or almost no symptoms directly referable to the parasite or suffering from other affections, 72 cases, that is, about 50 per cent, chyluria or hematochyluria, 36 cases, elephantiasis of the legs, 3, scrotal enlargement of various kinds, 13, inguinal enlargements, 11 Of the cases with chyluria, two showed that the chylous urine was passed by a single ureter, in one the right, the other, the left This may have been the case with many of the others, as probably only a few were cystoscopically examined In one case with inguinal enlargement the mistaken diagnosis of hernia was made, and in one with scrotal involvement a supposed tuberculous testicle was removed A moderate eosinophilia (from 10 to 15 per cent) was present in most of the cases, but was entirely absent in some

In those patients who became pregnant and had children, the embryos were not found in the child's blood or in the mother's milk (Henry's[22] Philadelphia case, Saussure's,[44] and Johnson's[45] Charleston cases Compare, however Barnes'[4] Washington case)

Geographically the eastern North America cases are distributed from Canada to New Orleans and Key West, and from Boston to St Louis There is a large endemic center in Charleston, and probably elsewhere in the South Indigenous cases are found along the Atlantic seaboard as far north as Philadelphia, but most cases north of Charleston are imported ones

Culex quinquefasciatus, the mosquito which serves as the intermediate host for *Filaria bancrofti,* ranges as far north as Washington and St Louis and perhaps farther It is a house and city mosquito

Adult worms remain living in their human host and give forth embryos for at least five years (Brooklyn and Washington cases), and probably thirteen years (Rosenberger's Philadelphia case)

The diagnosis is easily made by examining for living embryos in drops of fresh blood obtained at night, or by the Rivas-Smith method of placing a cubic centimeter of blood, day or night, in dilute acetic acid solution and examining the centrifuged sediment The number of embryos found varies from one to over 2 000 per cubic centimeter, depending on the time of day or night examined and probably the number of parent worms

Surgical interference, where the parent worms are accessible, has usually been successful when employed

Medicinal treatment is unsatisfactory In some of the foregoing cases salvarsan has apparently given good results Branch[48] speaks highly of it in the West Indies Cottle,[49] in the Pacific, thinks it ineffective

George Washington University

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[4] Barnes N P Month Cycl Med Bull 1913 6, 1 Tr Am Therap Soc for 1912 1913 p 156

[5] Slaughter R M Med News, 1891 59, 649 Practice (Richmond Va), 1891, 5, 329

[6] Dunn Thomas D Tr Coll Phys Philadelphia 1898 Series 3 20 80

[7] Johnstone Mary M S Chicago Med Recorder 1903 25 34 C Woman s Med Jour 1904 14, 1 25

[22] Henry Frederick P Med News 1896, 68, 477 Med Surg Reporter, 1896 74, 775

[44] De Saussure P G Med News 1890 56, 704

[45] Johnson F B South Med Jour July 1915, 8, 630

[48] Branch Edmund R Jour Med and Hyg 1913, 16, 364

[49] Cottle George F U S Naval Bull 1912, 6, 84

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 35)

ALBUMINURIA IN INSURANCE

A broader point of view and better knowledge of functional or accidental albuminuria have made its discovery in applicants for insurance a cause for reexamination of the urine, and not a cause per se for rejection. That albuminuria is not normal is acknowledged, and when it is found more than once in an applicant he is either rejected or his acceptance postponed. The age of the person in whom it is found is of importance, as after 40 even traces of albumin are suspicious. For the same reason an occasional hyaline cast may not be alarming in persons under 30, in those over 40 it is ominous. An applicant in whom albumin is found should be reexamined unless the amount is considerable. After four negative specimens and an absence of casts, with a blood pressure below 140 mm. systolic, or with a diastolic below 100 mm. if the systolic is 150, with cardiac sufficiency, and with no history of syphilis, tuberculosis or any renal disease, the applicant should be accepted. Any signs of cardiac hypertrophy or symptoms of hypertension should cause the applicant to be rejected.

A specific gravity of anything less than the whole twenty-four hours' urine is unimportant. A single specimen may vary from 1.005 (nervous urine, or urine passed soon after a long summer drink, or in severe cold weather) to 1.025, and still not indicate the average specific gravity. A high specific gravity, namely, more than 1.025, without sugar and without normal sediment, is rarely found in applicants for insurance. An abnormally low specific gravity of the urine is frequent, and in such cases most insurance companies require another examination; such an examination, however, is not justified on these data alone.

As the action of tobacco on the heart, blood vessels and kidneys is positive, a question of great importance, which the applicant should answer, is, "How many cigars, cigarets, and pipes do you smoke a day?" This is not yet often asked on insurance examinations, but is just as important today (there being fewer men who drink to excess) as is the question, "How many glasses of beer or whisky do you drink a day?" It is not sufficient to determine that the blood pressure is not too high in those who smoke to excess, as the high blood pressure may have become normal as a result of the weakening of the heart muscle by tobacco.

Occasionally a peculiar nervous albuminuria occurs in certain persons while under some nervous tension. However, although this condition often accompanies such nervous tension, these people never give evidence of orthostatic albuminuria. It is, of course, possible that at times some associated but undiscovered cause is present.

There are also instances of albuminuria in active persons with casts in the urine for years without any apparent progression, whose death will not be due to cardiovascular-renal disease. In such cases data of kidney function tests and of the nonprotein nitrogen of the blood should be obtained. We can no longer assume that hyaline or a few granular casts demonstrate nephritis. They do demonstrate some abnormal congestion or disturbance in some part of the kidney, but such a disturbance may completely disappear, as can a mild disturbance in any other part or organ of the body. On the other hand, coarse granular, fatty and waxy casts show kidney inflammation.

Traces of albumin may result from inflammation of the prostate and of the seminal vessels, and, of course, from pus anywhere in the urinary tract. In albuminuria from vesiculitis, Belfield[58] finds that if the urine is passed into three glasses, a little into the first, the bulk into the second, and a little into the third, a good reaction is found for albumin in the first and last glasses, but less in the second glass, while in renal albuminuria all of the urine tests the same. In prostatitis, massage of the prostate will increase the albumin in the urine passed immediately afterward. This is especially significant if the bladder has been previously washed. Of course urine drawn by ureteral catheters will positively prove the source of the albumin.

(To be continued)

THE MODERN TREATMENT OF MERCURIAL POISONING

Cases of mercurial poisoning, particularly with mercuric chlorid, are so common nowadays that we should be ready to treat these patients promptly. It is equally essential that every hospital should be prepared to treat patients with mercuric chlorid poisoning properly as soon as they are received. Until quite recently the prognosis was far from favorable, but the considerable degree of success attained of late in the management of mercury intoxication has given new hope and encouragement for vigorous attention in every case.

The excellent suggestions of Lieb and Goodwin[1] and of Lambert and Patterson[2] on which the prevalent mode of treatment is based have lately been supplemented by the further studies of Lewis and Rivers[3] at the Johns Hopkins Hospital. The keynote in the procedure is elimination, which must be encouraged energetically by every available method. The Baltimore investigators point out that many apparently moribund persons have been saved by properly directed and vigorously pushed therapeutic measures. Death should be the only indication, they remark, for a discontinuance of treatment prior to the complete recovery of the patient.

Inasmuch as the excretion of mercury into the stomach and intestine as well as its appearance in the sweat has been definitely demonstrated by chemical investigations, the instructions to wash out the stomach frequently, to irrigate the colon liberally and to induce perspiration by means of a hot pack are placed on a rational basis. The administration of alkalies is based on the work of Macnider, who, in an article in the *Journal of Experimental Medicine* (1916, 23, 171), shows that they are capable of protecting the kidney from the full renal effect of salts of heavy metals like uranium which lead to pronounced nephritic disease as mercury does. Sodium bicarbonate exerts a diuretic action in addition, and there are indications of a decided benefit when it has been employed in mercury poisoning.

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[58] Belfield, W. T.: Vesicular Albuminuria, The Journal A. M. A., June 19, 1915, p. 2040.

[1] Lieb, C. C., and Goodwin, G. M.: The Excretion of Mercury by the Gastric Mucous Membrane, The Journal A. M. A., June 19, 1915, p. 2041.

[2] Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

[3] Lewis, D. S., and Rivers, T. M.: Chemical Studies on a Case of Bichloride Poisoning, Bull. Johns Hopkins Hosp., 1916, 27, 193.

The high figures reported for nonprotein nitrogen of the blood indicate the retention of nitrogenous waste, which is undoubtedly a factor in the early fatal issue of some cases Lewis and Rivers,[3] therefore, urge the administration of carbohydrate in the form of glucose, either by mouth or intravenously, in a 10 to 50 per cent solution In addition to serving as a mild diuretic, it is believed to exert a protein-sparing action and thereby delay the appearance of extreme grades of nitrogen retention which usually precede death

As an index to the changes in the renal function the specific gravity curve of the urine should be studied in addition to the familiar functional tests for kidney performance Mosenthal[4] has shown how much information may be gained regarding the condition of kidney function from a study of this factor In nephritis, marked fixation of the specific gravity at a low level occurs in only the severest types This is characteristic of a kidney which has no reserve power whatever and is therefore compelled to function constantly at its maximum capacity in order to eliminate the end-products of metabolism which ordinarily find an exit from the body in the urine The variations in the concentration of the urine, as expressed by its specific gravity, become more and more conspicuous as renal function approaches normal

The accumulation of reliable guides based on careful studies of mercury poisoning are a fortunate accession to modern therapy Any treatment which has a rational background of scientific indications to support it is always undertaken with greater zest, confidence and persistence than are the haphazard makeshifts of empiric rules The indifference bred of failure is no longer justified Quoting Janeway[5] in respect to the management of cases of mercuric chlorid poisoning, every practitioner either should know how to treat these patients, or should get them promptly to the nearest hospital that does

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION W A PUCKNER, SECRETARY

UREASE

Urease is a urealytic enzyme found in certain beans fungi and micro-organisms

Actions and Uses—In the presence of water, urease converts urea into ammonium carbonate, thus $(NH_2)_2CO + 2H_2O = (NH_4)_2CO_3$ It is employed in the determination of the amount of urea in the urine, blood and other body fluids

Dosage—For the estimation of urea in the urine, two methods are used with various modifications 1 A measured amount of urine is treated with urease, and after a specified time the ammonia produced is drawn into volumetric acid by means of an air current, and the residual acid determined by titration ("Absolute Method" D D Van Slyke *Jour Biol Chem*, 1913-1914 **16,** 125) 2 The alkalinity of a portion of urine, treated with urease, is determined with volumetric hydrochloric acid (methyl orange being used as an indicator) This figure is corrected for the acidity or alkalinity of an equal volume of the same urine determined with the same reagents The corrected figure represents the ammonium carbonate formed by the conversion of the urea present (Marshall, *Jour Biol Chem*, 1913, **14,** 283)

The amount of urea in blood is determined by treating as in Method 1, the blood having been mixed with potassium citrate, to prevent clotting as soon as drawn

UREASE-SQUIBB—Jack bean urease—A standardized preparation of the urealytic enzyme obtained from the jack bean, *Canavalia ensiformis*

Actions Uses and Dosage—See general article on urease above Urease-Squibb is supplied in the form of powder and tablets

Manufactured by E R Squibb and Sons, New York No U S patent or trademark

Urease Squibb Tablets 0 1 Gm—Each tablet contains 0 1 Gm urease Squibb

An aqueous extract of the jack bean is filtered the clear filtrate reduced to dryness the dry powder extracted with absolute alcohol, acetone and ether dried, and the dry powder mixed with monopotassium phosphate and dipotassium phosphate in proportion to produce the maximum hydrolytic action and stability of the enzyme

It is a fine white, practically odorless and tasteless powder which dissolves readily in cold water, forming an almost clear solution

If 0 1 Gm of Urease Squibb in 1 Cc of water be added to 5 Cc of phosphate urea mixture (according to the absolute method') and digested at 20 C for fifteen minutes, it will decompose sufficient urea to liberate from 100 to 150 Cc of fiftieth normal ammonia by aeration

NEUTRAL SOLUTION OF CHLORINATED SODA—Solution Chlorinated Soda, Dakin—Solution Chlorinated Soda, Carrel-Dakin—A chlorinated soda solution, containing 0 43 to 0 48 per cent of available chlorine, free from caustic alkali It must be protected from light

Actions and Uses—Neutral chlorinated soda solution has the germicidal and other properties of solution of chlorinated soda U S P but because of its freedom from alkali is not irritating to the tissues It does not coagulate or precipitate the proteins of the lymph exudate in wounds, nor does it inhibit leukocytosis or phagocytosis or the digestive action of tryptic enzymes It has been used after the first cleansing and in the subsequent more or less continuous irrigation of wounds, especially of infected war wounds Whether its action in this case is to be attributed to the real antiseptic or germicidal effect is still doubtful

Dosage—For external use full strength

Place 154 Gm chlorinated lime assaying 30 per cent available chlorine (by the method of the U S P) and 5 liters of water in a jar, stir thoroughly and let stand for 6 to 12 hours Add to this with constant stirring a solution of 91 Gm monohydrated sodium carbonate and 64 Gm sodium bicarbonate in 5 liters of cold water After one half hour siphon off the clear liquid and filter it through double filter paper to obtain a clear solution Transfer the liquid to glass containers and keep dark (If the chlorinated lime contains a larger or smaller amount of available chlorine than 30 per cent each of the ingredients to be used in making ten liters should be proportionately decreased or increased)

If to 20 Cc neutral solution chlorinated soda about 0 020 Gm phenolphthalein in powder is added no red color develops on agitation

If the available chlorine of neutral solution of chlorinated soda is determined by the U S P assay method for *liquor sodae chlorinatae* it should contain not less than 0 43 per cent nor more than 0 48 per cent available chlorine, equivalent to not less than 0 45 per cent nor more than 0 50 per cent sodium hypochlorite (NaOCl)

THEOBROMINE (See New and Nonofficial Remedies, 1916, p 376)

Theobromine-Merck—A nonproprietary brand complying with the standards for theobromine

Manufactured by L Merck, Darmstadt Germany (Merck and Company New York)

BARIUM SULPHATE FOR ROENTGEN-RAY WORK (See THE JOURNAL, Oct 7, 1916, p 1091)

Barium Sulphate, P W R for X-Ray Diagnosis—A nonproprietary brand complying with the standards for barium sulphate for Roentgen-ray work

Manufactured by Powers Weightman Rosengarten Co Philadelphia

Barium Sulphate, Merck for X-Ray Diagnosis—A nonproprietary brand complying with the standards for barium sulphate for Roentgen ray work

Manufactured by E Merck Darmstadt Germany (Merck and Company New York)

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[4] Mosenthal H O Renal Function as Measured by the Elimination of Fluids Salt and Nitrogen, and the Specific Gravity of the Urine Arch Int Med 16 733 Nov 1915

[5] Janeway Discussion of the Paper of Lewis and Rivers (Footnote 3) Bull Johns Hopkins Hosp 27 201 July 1916

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SATURDAY, JANUARY 13, 1917

PHYSIOLOGIC ASPECTS OF THE WORKING DAY PROBLEM

The length of the working day has a preeminently physiologic bearing, and recently has assumed increased political prominence Lee[1] has presented the crux of the matter as follows The eight-hour problem is primarily a problem of physiology, if the physiologic effects of any kind of labor are injurious, the conditions of such labor should be changed This is fundamental, and should precede any consideration of the economic and social effects resulting from a change of conditions, a basic fact which is continually overlooked

The most serious physiologic interference accompanying prolonged uninterrupted work is the familiar phenomenon of fatigue Its existence is generally recognized, yet few except those who have attempted a more intimate analysis of work in relation to weariness realize the subtle ways in which fatigue not only damages the working human mechanism but also tends to lower the efficiency of its performance Nowadays every student of medicine has opportunity to learn from his experimental study of physiology that the introduction of periods of rest during a laboratory experiment with a muscle diminishes the fatigue of the moment, aids recuperation, and delays the oncoming of exhaustion This fact is demonstrated in each of us several times in a minute, since each beat of the heart is followed by a period of rest to enable the cardiac muscle to recuperate from the effects of the previous contraction The beneficial effects of similar periods of rest in industrial labor, as Lee reminds us, are evidenced by the custom — not uncommon since the striking demonstration of the late Mr Frederick Taylor in the lifting of heavy iron pigs — of giving workers occasional brief intervals of freedom from their tasks

Any working day which, through conditions of intensity and rate of labor and environmental features, tends to cause the detrimental effects of fatigue should be modified Here is a large field for the careful study of conditions relating to the hygiene of work Formerly economic arguments were commonly employed to combat all attempts to reduce working hours for those performing heavy labor Recently there has been a growing conviction that in many industries a shorter working period under more favorable physiologic conditions will frequently result in an output as large as that achieved on a longer working day basis, if not even larger The question, however, is one not only of a shorter day, but also of more frequent periods of rest which may tend to eliminate the incipient fatigue which curtails efficiency

Whether or not the reduction of the working period to the eight hour day is a physiologic necessity cannot be decided on any *a priori* grounds Lee points out that two factors are to be considered the characteristics of the labor, and the capacity of the laborer Different occupations vary greatly in their fatiguing power Especially productive of fatigue are those characterized by great muscular effort, unusual quickness or complexity of muscular action, single acts, however simple, which are monotonously repeated over long intervals of time, constant strain through concentration of attention or through a bodily posture long maintained, and those occupations in which the work is carried on in crowded places, in extreme heat and humidity, in the midst of excessive noise, or under other unfavorable environmental conditions Perhaps the ideal will hinge on the establishment of a system of labor in which the length of the working day shall vary for each person according to his personal capacity

It would be folly to say that other aspects of the problem deserve no consideration in the discussion of the working day Labor leaders insist on the propriety of certain demands from the standpoint of social justice an opportunity for something more than machine efficiency, and more time for personal enjoyment and social betterment If the ideal conditions of work demanded are afforded, a serious obligation to do his best will rest on the laborer as well as on each one of us

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[1] Lee, F S Is the Eight Hour Working Day Rational? Science, Nov 24, 1916, p 727

THE SANITARY ASPECTS OF THE PUBLIC FOOD MARKET

The widespread agitation regarding the high cost of food has focused attention on various possible palliative factors, among them the public or municipal markets From the standpoint of the food economist these are assumed to contribute to better living conditions by lowering the cost of distribution, as well as by effecting other economies The food market, whether under public or private control, introduces many problems of sanitary and hygienic importance, such as the care of easily deteriorated foods publicly offered for sale, which have already been brought within the jurisdiction of municipal boards of health or other forms of inspection service

Other features are either too utopian or too difficult of enforcement to receive authoritative consideration at the present time Among these belong such matters as the personal cleanliness of food handlers and the perhaps still visionary schemes for indicating food values in some intellectually tangible manner Now that the establishment of public markets is everywhere under discussion more widely than it has been before, it may not be amiss to inquire wherein sanitary science and hygiene might play some part in the plans for the future

There are, first of all, possibilities of danger to health in the foods offered for sale They may deteriorate from natural decay, they may be adulterated by harmful additions or equally unjustified subtractions, they may become sources of infection through personal contamination or careless handling, and be responsible for the transmission of disease Such eventualities are recognized Chemical and bacteriologic laboratories should cooperate with official inspectors, as they already do in many places, to enforce rational sanitary codes Armstrong[1] believes that even greater safeguarding in the direction of standard analysis of food is likely to come in the future This has long been urged by Lusk[2] Thus he says

> The poor, 50 to 60 per cent of whose income is spent for food, waste their money in the purchase of beautiful labels or relatively expensive and unnutritious foods A publisher employing several thousand individuals says that his employees buy from choice the products advertised in his magazines Children of the poor are sent to buy food for the family and the whole expenditure of half the family's income is effected in an atmosphere of unfathomable ignorance Yet if one seeks to help, one is informed that one must not meddle with the appetites, and the funny man of the newspaper makes a witticism on the subject of "highbrow" information

In somewhat the same spirit Armstrong contends that eventually governmental authority will have to take the responsibility for food standardization, and if this standardization is to be on a rational basis, calorific values will have to be employed Further, if the purchaser is ever to be educated to the point at which she can buy her food supply on an intelligent food value basis, there will have to be a mechanism for routine calorific food analyses In the present state of development, an equipment of this kind cannot, of course, be considered a prerequisite to the market establishment At the same time, its need should be emphasized, so that in the future it may become an essential part of the municipal market control Again, it must be made clear that this is, of course, of hygienic rather than of sanitary importance Incidentally it may be pointed out that in "standardizing" foods for human consumption we should merely be imitating what has long been an enforced and now highly appreciated regulation in respect to cattle feeds

The ideal food market needs healthy employees Good food deserves to be handled by persons free from communicable disease, otherwise wherein are the advantages of the legal protection of food, offered for sale, from dust, dirt, flies and other contaminations? Much of such regulation now becoming more popular in large municipalities is confessedly in the interest of decency rather than strict hygiene With all these safeguards, however, the sanest sanitary regulations will not accomplish their best possibilities until the purchasing public is educated up to the significance of the modern, perhaps sometimes overdone, hygienic propaganda Perhaps the highest standard has rarely been presented with broader vision than by Armstrong when he said

> If eventually municipalities would meet the responsibility of having this program of personal food hygiene include, not only the infection-preventive and disease-suppressive factors of food protection but also the positive health-creative educational factors of dietary food selection, the markets would then be utilized to something like their full potentiality as creative, social forces

THE RESPONSE OF THE PYLORIC MECHANISM

The conditions which determine the gastric discharge through the pylorus into the duodenum, and the relations of gastric acidity to motility, discharge and duodenal regurgitation have a direct bearing on the diagnosis and treatment of disorders of the stomach Recently the application of the Roentgen ray to the examination of movements of the alimentary tract in its various sections has led to definite conclusions as to the normal performance of the pyloric mechanism Thus it is reported, as the result of observations on experimental animals, that if the secretion of gastric juice is deficient the opening of the pylorus is not easily accomplished The opening of the pylorus, however, seems to depend not only on intragastric events but also on the condition of the duodenum So long as the contents of the latter are acid, the pylorus remains firmly closed For example, it has been reported that if alkaline fluid is introduced into the stomach, it is passed rapidly into the duodenum, but if acid is introduced simultaneously by experimental devices within the duodenal canal, the pylorus remains shut and no fluid passes beyond its portals until the acid which bathes the duodenum is neutralized by alkaline juices secreted into the gastrointestinal lumen

Starling[1] summarized the subject by saying that we probably have in the walls of the alimentary canal a local nervous mechanism for the movements of the pyloric sphincter This may be played on by impulses starting either in the stomach or in the duodenum, probably by the contact of acid with the mucous membrane Increasing acidity on the side of the stomach causes relaxation of the orifice, whereas acidity on the duodenal side causes contraction of the pyloric orifice The exact parts, however, played in the mechanism by the local system and by the central nervous system, respectively, have not yet been thoroughly made out, though there is no doubt that these movements may proceed independently of any connection with the central nervous system

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[1] Armstrong D B The Sanitation of Food Stores and Markets Jour Home Economics 1916 8, 577 The Sanitation of Public Markets, The Journal A M A, this issue p 103

[2] Gephart F C and Lusk, Graham Analysis and Cost of Ready to Serve Foods, Chicago American Medical Association 1915 p 15

[1] Starling E H Human Physiology, 1915 p 700

It has lately been pointed out that these deductions, drawn largely from observations on laboratory animals, are not entirely in accord with clinical observations It is asserted that in cases of so-called hyperacidity, a retarded emptying of the stomach with resulting atony and dilatation is often found, and also, that in cases of achylia gastrica, in which there is practically no free acid found in the stomach, the normal rate of discharge is often unimpaired It seems probable, therefore, that the presence of an acid reaction is not the only essential factor in the control of gastric discharge It would be futile to recite the details of the conflicting reports Further carefully planned investigations in this field are clearly needed to unravel the tangle of discrepancies In recent studies by Morse,[2] of the laboratory of physiology of the Northwestern University Medical School, the abolition of sympathetic reflexes which might inhibit the effects sought to be determined was accomplished by making observations on animals in which the spinal cord was in part destroyed Quite unexpectedly throughout these experiments the presence of acid in the stomach in general has been observed to retard rather than hasten gastric discharge It is reported that water is discharged from the fasting stomach of anesthetized pithed dogs more rapidly than any percentage of acid The rate of discharge is decreased with increase of acidity Duodenal regurgitation, as evidenced by increase in the contents of the stomach often occurred at 0 2 per cent acidity, and in nearly all trials occurred at or before 0 3 per cent acidity was reached Increase in acidity increased the frequency and amount of regurgitation from the duodenum

If any more universal application may be ascribed to the experiments of Morse, it appears that the acidity of fluid gastric contents has no supreme function in producing or hastening gastric discharge, but the discharge seems to be controlled by the irritability or nonirritability of gastric contents to the duodenal mucosa This suggestion of a progressive diminution in the rapidity of discharge through the pylorus with increase in the acidity of the gastric contents is so contrary to the accepted version of what occurs[3] that at best we may speak of an old problem presented anew for solution For the moment the center of interest in the control of the pyloric sphincter has been shifted more prominently to the region of the duodenum

HEMATOPORPHYRIN

Hematoporphyrin is the term applied to one or more iron-free pigments obtained by the decomposition of color-bearing components of the blood pigment hemoglobin Its significance in medicine has been derived from the fact that hematoporphyrin is at times found as a noteworthy constituent of the urine, having a diagnostic import as a symptom of poisoning with sulphonal trional, tetronal, quinin and other drugs It has also been found in the urine in a variety of diseases which have no obvious common relationship in respect to the origin of the excreted pigment It is even stated that traces of hematoporphyrin regularly occur in the urine of healthy persons

To account for the elimination of hematoporphyrin in the urine, it is necessary to consider its antecedent possible origin from blood pigment in the body Nothing definite relating to the mode of formation or the seat of production is known at present The chemical relationships of hematoporphyrin offer a starting point for hypotheses respecting its introduction and physiologic significance It is closely related to the bile pigment bilirubin and to the urinary pigment urobilin

It is readily conceivable, therefore, that hematoporphyrin represents a stage in the destructive metabolism of hematin, the chromogenic part of the hemoglobin molecule, and that ordinarily the conversion proceeds to the stage of the bile pigment without betraying the intermediate product here under discussion If this were true, urinary hematoporphyrin as well as hematin might represent degradation products which for some reason have escaped further change and consequently are excreted in the transitory stage

Hoagland,[1] of the biochemical division of the Bureau of Animal Industry, has suggested a possible source of hematoporphyrin within the body not realized till now In a series of experiments on the aseptic autolysis of ox muscle, he observed the appearance of pigment spectroscopically identical with hematoporphyrin This result was obtained only when the air was excluded, and led the observer to conclude that the striated muscular tissue contains enzymes which, under anaerobic conditions, readily reduce oxyhemoglobin to hematoporphyrin These findings appear to Hoagland to offer a satisfactory explanation as to the method and source of production of hematoporphyrin in the body

In view of the fact that hematoporphyrinuria often is an accompaniment of cases of poisoning or disease in which the liver cells are believed to be destroyed or inactivated, Hoagland ventures a step further in postulating, on the basis of the foregoing, that probably hematoporphyrin may be a regular intermediate product in the transformation of hemoglobin into bile pigments The generally accepted view, he says, concerning the disposal of the free hemoglobin in the blood stream under normal conditions, is that the hemoglobin is converted directly into bile pigments by the liver. Such being the case, it would seem that when an abnormal quantity of hemoglobin is liberated into the blood stream, or when the activity of the liver is greatly decreased by disease or other causes, hemoglobin rather than hematoporphyrin would be excreted in the urine. Yet hemoglobin is not so commonly found under such conditions.

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[2] *Morse* W E The Relation of Acid to Gastric Discharge and Duodenal Regurgitation in the Dog Am Jour Physiol 1916 **41** 439

[3] Cannon W R The Mechanical Factors of Digestion New York 1911

[1] Hoagland R Formation of Hematoporphyrin in Ox Muscle During Autolysis Jour Agricultural Research 1916 **7,** 41

There is, however, still another circumstance which deserves mention. If hematoporphyrin is formed as readily in muscular tissue as Hoagland would lead us to believe, may we not take into consideration the further possibility that hematoporphyrin is ingested in meat products more frequently than is suspected, and that an exogenous source of urinary hematoporphyrin is thus furnished? Until more is known of the fate of this interesting blood pigment derivative in the alimentary tract, in the blood stream and in the liver, only the vaguest hypotheses can prevail as to its true significance.

In any event, hematoporphyrin is only one of a series of closely related compounds, the porphyrins, which promise to have a greater significance in physiology and pathology than has generally been accorded to them.[2] Both the porphyrins of animal origin and the chlorophyl derivative, phylloporphyrin, seem to act as photosensitizing agents, rendering the body peculiarly susceptible to noxious effects from light. Animals injected with various porphyrins promptly exhibit untoward symptoms when exposed to light, but not when kept in the dark. There are affections of the skin, as hydroa aestivale, associated with exposure to bright sunlight, in which cutaneous symptoms manifest themselves simultaneously with the appearance of hematoporphyrin in the urine.[3] In other instances, likewise attended with hematoporphyrinuria, necroses have been observed in parts of the body exposed to light.[4] Such experiences seem to be more than chance analogies.

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[2] The Porphyrins in Pathology, The Journal A. M. A., March 29, 1913, p. 998.

[3] Ehrmann, S.: Arch. f. Dermat. u. Syph., 1909, **97**, 83.

[4] Perutz, A.: Wien. klin. Wchnschr., 1910, **23**, 122.

Reflex Epilepsy from Contusion of the Kidney

O. Uffreduzzi has recently reported a case of epileptic seizures which came on for the first time after contusion of one kidney. The patient apparently had been healthy before with nothing to indicate a predisposition to nervous trouble. The convulsions were at first localized, but gradually became general, with loss of consciousness. The removal of the peripheral focus, the displaced and cystic kidney, was followed by a complete cure of the reflex epilepsy. Even if this had failed to cure the assumption of reflex epilepsy was unmistakably correct, various other factors might have cooperated in the irritation entailing the seizures. Cicatricial changes or other central or peripheral cause might keep up a tendency to epileptic seizures even after removal of the primary cause. The foregoing is from an abstract in *Pathologica*, 1916, **7**, 265.

Current Comment

METAL MINE ACCIDENTS DURING 1915

While the number of men killed in the metal mines of the United States in 1915 was less than in 1914, the fatality rate was slightly higher. In 1915, there were among 152,118 men employed, 553 men killed, a rate of 3.64 a thousand, while in 1914, out of 158,115 men employed, there were 559 fatal accidents, a rate of 3.54 a thousand. Among the 202,000 men employed in metal mines and in metallurgical plants, there were in 1915, 35,295 nonfatal injuries, 35 of which resulted in permanent total disability, 574 in permanent partial disability, 7,242 involved a loss of more than fourteen days' time and 27,144 were responsible for a loss of from one to fourteen days. The rate of nonfatal injuries was 232 a thousand, as compared with 191 for 1914. This increase in the injury rate is attributed by the Bureau of Mines, not to an actual increase in the number of accidents, but rather to the fact that better and more complete reports are secured each year. The occurrence of over 35,000 disabling injuries in one year among 200,000 employees, nearly 8,000 of which resulted in a loss of more than two weeks' time, is significant and interesting, in view of the present widespread discussion of social insurance. Eight thousand accidents with a minimum of two weeks' incapacity would amount to 16,000 weeks or 96,000 working days lost. When to this is added the loss from 27,144 minor injuries with an average loss of seven days each, amounting to 190,000 days, we have a total loss from nonfatal injuries of 286,000 working days a year in this industry alone.

NEW FACTS ABOUT PHOSPHATIDS

The phosphatids or phospholipins are the fatty substances which yield, on decomposition, phosphoric acid and fatty acids along with certain nitrogenous bases. Lecithin is the most familiar substance of this group of lipoids; another member, kephalin, has lately come into greater prominence than it has heretofore held as the result of its probable relation to the coagulation of the blood. Ever since Hoppe-Seyler pointed out that lecithin-like substances are probably present in all living cells, more or less attention has been focused on this group of compounds. It is fifty years since Diaconow[1] suggested the probable chemical structure of the lecithin of egg yolk, yet the exact structural make-up of this compound is not completely solved today. Despite this, the phosphatids have played a prominent part in a variety of physiologic speculations in respect to vital phenomena. Their physical texture and tendency to form emulsion-like solutions have given them significance in the physical phenomena of protoplasm. They are doubtless concerned in some of the reactions of immunity, such as the Wassermann test for syphilis and other changes involving the process of hemolysis. They may unite with toxins and enzymes so as to facilitate or retard biochemical reactions. Thus the phosphatids have attained a sort of scientific "popularity" far beyond the apparent deserts of their as yet ill defined chemical structure, so that new information regarding them is much to be desired Not long ago we called attention to the final demonstration that at least two phosphatids are present in milk,[2] thus answering a long debated question as to whether or not these lipoids are actually represented in this important food Osborne and Wakeman,[3] to whom this information is due, have now furnished proof that all of the phosphatids present in cow's milk are associated in some way with protein It is not unlikely that such combinations, which have long been known in the so-called "lecithalbumin" of the egg yolk, represent the form in which the phosphatids primarily exist in the living protoplasm Indeed, there is reason to believe that the proteins of the blood are engaged in similar combinations

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[1] Diaconow, C.: Ueber das Lecithin, Hoppe-Seyler's Medizinisch-chemische Untersuchungen, 1868, **3**, 405.

SECRECY, THE FUNDAMENTAL

The Proprietary Association is the "patent medicine" organization of the United States, and its devious methods have been referred to many times Samuel Hopkins Adams in the "Great American Fraud" series turned the light on the activities of the concern in a general way, while Mark Sullivan in "The Patent Medicine Conspiracy Against the Freedom of the Press' gave specific instances of its tricky methods The Proprietary Association used to publish annual reports giving a list of its members and representatives, as well as of its associate members and the names of the concerns these members represented Apparently, it no longer does so and the membership of the Proprietary Association seems to be a close secret After each annual meeting the drug journals usually publish the list of newly elected officers, and that is about the extent to which the public is given any hint as to who comprise this "patent medicine" organization The Proprietary Association has claimed to be doing some house-cleaning — Heaven knows it is needed! — within its own ranks As there is no possible way of checking up on the question, it is a safe claim to make If a "patent medicine" faker is "caught with the goods" the Proprietary Association can conveniently disown any connection with the guilty party It is a fitting commentary on much of the "patent medicine" business that the organization which represents it should be so ashamed of its own membership that it is unwilling to make it public Secrecy in composition! This is the watchword of the 'patent medicine" industry, not only as it applies to its products, but also as it applies to its official organization!

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[2] The Lecithins of Milk editorial, The Journal A M A, Nov 13, 1915 p 1734

[3] Osborne, T B and Wakeman A J Some New Constituents of Milk Second Paper, The Distribution of Phosphatides in Milk, Jour Biol Chem, 1916, **28**, 1

A Sad Commentary—It is a strange commentary on man that his greatest gifts for good are so grossly neglected The church's flagging interests must be kept alive by quasi-secular amusements, angel cake and church suppers—while the tuberculosis campaign subsists on the Red Cross stamp and the small change which seductive, begging letters may withdraw from a reinforced pocket—*Bull*, Newark (N J) Dept of Health

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest such as relate to society activities, new hospitals, education public health, etc)

ALABAMA

Personal—Dr Francis E Harrington, U S P H S, has been granted a leave of absence by Surgeon General Blue to take charge of the health work of Jefferson County Dr Harrington was elected full time health officer of Jefferson County

Health System Needed in Birmingham—The Jefferson County Medical Society adopted resolutions at its December meeting, calling on the various woman's clubs, commercial organizations and citizens to appear before the board of revenue to urge a large appropriation for the installation of a unified health system, recommended by Surg Carroll Fox, U S P H S

New Officers for Mobile Society—At the annual meeting of the Mobile County Medical Society, December 2, the following officers were elected president, Dr James J Peterson, vice president Dr Lee W Roe, secretary, Dr Willis W Scales (reelected), and treasurer, Dr Eugene Thames The society also recommended Dr Paul J M Acker as county health officer, Dr Eugene Thames as physician to the County Jail and Poor Asylum, Dr Edward C Terrill as physician to the Pine Grove Hospital, and reelected Dr M Toulmin Gaines as a member of the Committee on Public Health and Board of Censors

ARKANSAS

License Revoked—Official notice from the State Medical Board of Arkansas says that at its meeting held Dec 28, 1916 the license of Dr W C Baldwin, Helena was revoked for claiming through public advertising a special ability to treat and cure chronic and incurable diseases

Hospital Notes—The superintendent of the Sebastian County Hospital announces that accommodations for twenty-five additional patients are now ready The third floor of the building has been remodeled, so that it has five five-room wards, an operating room and sterilizing room

State Health Board Appointments—December 30, Governor Hayes reappointed Drs Burrell A Fletcher, Augusta, and Henry L Montgomery, Gravelly, as members of the state board of health, and also named Dr Fergus O Mahony, Eldorado, to succeed Dr Andrew L Buckner, Dermott, on the board

COLORADO

Barker in Denver—Dr Lewellys F Barker of Johns Hopkins University delivered an address on 'Internal Secretions" before the Medical Society of the City and County of Denver, December 26

Personal—Dr George B Packard Jr, who for the last six months has been a surgeon in the allied service on the western war front sailed for home, December 16——Dr Charles A Powers, Denver, after a short vacation has returned to his work in an American hospital in Paris

Public Health Administration—In *Public Health Reports*, Dec 29, 1916, appear the results of a study by Surg Carroll Fox, U S P H S, of public health organization and administration in Colorado, similar to the studies made under the direction of the Public Health Service in other states Among the recommendations made for the improvement of the health service in the state are the creation of full time instead of part time positions of secretary, medical inspector, sanitary engineer, bacteriologist and some others, the increasing of their salaries, the establishment of a well equipped laboratory, energetic efforts to secure notification of reportable diseases, and complete birth and death registration Laws requiring this are now on the statute books A reorganization of the board on a different plan is recommended, as well as increased appropriations

DISTRICT OF COLUMBIA

Medical Examination of Schoolteachers Made Compulsory—The board of education has promulgated rules requiring teachers in the public schools to undergo medical examinations to determine their physical fitness whenever the supervising officer immediately responsible for their work so directs The rules are intended primarily to provide against the continuance in school of teachers suspected of suffering from communicable diseases or of harboring infection endangering the health of their pupils

ILLINOIS

Chicago

Clemenson's Sentence Commuted—The sentence of imprisonment for life imposed on Dr Haldane Clemenson eight years ago for the murder of his wife was commuted December 26, to twenty-five years by order of Governor Dunne With the good conduct allowance, this will allow Dr Clemenson to be released in 1923

Polish Physicians Elect Officers—At the annual meeting of the Chicago Polish Medical Society the following officers were elected president, Dr Wladyslaw A Kuflewski, vice president Dr Anthony Balcerzak, secretary, Dr A Pietrzykowski (reelected), and treasurer and editor in chief of the *Polish Medical Bulletin* Dr Nicholas Kalinowski (reelected)

To Combat Paralysis—The health commissioner of Chicago has sent to the finance committee of the council a request for $500,000 to combat infantile paralysis during the coming year in addition to the regular budget of the health department The commissioner urges that no decrease be made in the working force or the appropriations for the health department, notwithstanding the financial condition of the city

Contagious Disease Hospital Opened—The new Municipal Contagious Disease Hospital was opened, January 7, when fourteen scarlet fever patients were admitted The building is five stories in height. Four floors will be devoted at present, to scarlet fever patients At a meeting of the Chicago Medical Society, January 3 a resolution was adopted endorsing the recommendation that the hospital be called the Alfred C Cotton Hospital

Personal—Dr Edward K Armstrong was selected as superintendent of the new Contagious Disease Hospital by a committee consisting of Drs A. J Ochsner, D A K Steele A Augustus O Neil and J V Fowler He accepted the position and took charge of the institution, January 4——Dr William Healy, director of the Juvenile Psychopathic Institute, has resigned to take charge of the Judge Harvey Baker Foundation, a similar institution in Boston——Dr John Webster Melody resumed his series of lectures on Moral Law in the Medical Profession" January 7 at St Jarlath's Hall, Hermitage Avenue and Jackson Boulevard——Dr Charles F Swan, for many years a practitioner of South Chicago and who has been visiting in Vancouver Wash since last September was stricken with cerebral hemorrhage, December 24——Dr Abraham L Desser was seriously injured in a collision between his automobile and a street car, December 31

INDIANA

State Health Officer Gives Luncheon—Dr John N Hurty, secretary of the state board of health gave his annual Christmas luncheon to the employees of the board, December 22

Leprosy in Indianapolis—A case of leprosy was reported December 11, from the Robert W Long Hospital Indianapolis the patient being a man 69 years old from Fort Branch Ind He is now said to be quarantined at his home in Fort Branch

Shipwrecked—Dr Perry C Traver South Bend has returned after three months service in the Panama Canal Zone Dr Traver was a passenger on the United States Army Transport *Sumner* which went aground off Barnegat N J, December 11

KENTUCKY

Smallpox—City Health Officer Grant of Louisville recently made the statement that during the eight years preceding 1914 there were reported annually an average of 700 smallpox cases in the city Under the compulsory vaccination law which had resulted in the protection of 30 000 unvaccinated persons the yearly average has been reduced to two cases Similar reductions he said had been noted throughout the state.

Vaccination Decision—In 1916 suit was brought by citizens of Henry County to enjoin the county board of health from enforcing an order of the county board of health requiring all teachers and pupils in the public schools to be vaccinated In a decision by the Court of Appeals of Kentucky, printed in full in *Public Health Reports*, Dec. 29 1916, the court held that the evidence showed that the board was justified in its order that a matter of such vital importance to the community should not be left to the whim of individuals, and that the action of the local board of health should be sustained

LOUISIANA

Dr Dowling Reappointed—Governor Pleasant has reappointed Dr Oscar Dowling Shreveport, president of the Louisiana State Board of Health for a term of four years

MARYLAND

Organization of Bureau of Communicable Diseases—The organization of a bureau of communicable diseases has been announced by Health Commissioner Blake, Baltimore It will be in charge of Dr John F Hogan and will include the health wardens the nursing division the tuberculosis dispensaries school physicians the clerk of vital statistics the fumigation division the complaint clerk, the tenement house division and Sydenham Hospital

Personal—Dr Harry H Johnson has been appointed superintendent of the Sydenham Hospital by Health Commissioner Blake to succeed Dr John F Hogan recently appointed second assistant commissioner of health——Dr Ernest Zueblin professor of medicine at the University of Maryland has accepted the directorship of the tuberculosis department of the medical faculty of the University of Ohio Dr Zueblin is a graduate of the University of Lausanne, Switzerland having entered the institution after five years study at Heidelberg and Zurich——Dr Richard E Yellott Fallston, is in a serious condition at the Hebrew Hospital He is said to have taken several bichlorid tablets while despondent over continued ill health——Dr Simon Flexner of the Rockefeller Institute, New York will deliver a public health lecture on ‘Infantile Paralysis and Its Relation to the Public Health" at a meeting arranged by the Johns Hopkins University and the Women s Civic League December 13 in Baltimore——Dr John C Grieve chief of staff of the Battle Harbor Hospital Labrador delivered an illustrated address recently in Baltimore on the work of the Grenfell Mission in Labrador——Dr Harry L Kolseth has been appointed health warden of the Thirteenth Ward of Baltimore, to succeed Dr John H von Dreele, resigned

MISSISSIPPI

Sanitary Survey of Jones County—The board of supervisors of Jones County will appropriate $1 600 for a sanitary survey of the county to be made in cooperation with the state board of health and the Rockefeller Foundation The latter organization is said to be prepared to spend, if necessary, $50 000 on this work in the county

New Secretary for State Board—At the meeting of the Mississippi State Board of Health January 2 Dr Waller S Leathers university director of public health under the state board and connected with the board for nearly seven years was elected secretary and executive officer to succeed Dr Jacob D Gilleylen, Jackson deceased

New Officers—At the quarterly meeting of the Neshoba-Winston-Newton Tri-County Medical Association held in Newton December 18 the following officers were elected president, Dr Z Carl Hagan Union, vice presidents Drs William H Mars Philadelphia, and Frank L Brantley Dixon and secretary-treasurer, Dr Sidney A Majure, Union (reelected)

NEW YORK

Personal—Dr Marcus B Heyman Central Islip Long Island has been appointed superintendent of the State Hospital for Nervous Diseases Little Rock Ark to succeed Dr Edwin P Bledsoe——Dr William J Gabel Syracuse has been appointed physician to the Onondaga Reservation

Mortality and Morbidity in Syracuse—During 1916 there were in Syracuse 2 360 deaths 63 of which were due to infantile paralysis There were 229 cases of this disease The births numbered 3 875 as compared with 3 577 for 1915 and 3 417 for 1914 The deaths for 1915 were 2,013, and for 1914 they were 2 205 The death rates for the three years were respectively 15.3 13.2 and 14 3 per thousand

Communicable Diseases—At Cohoes during the year ending December 1, there were in the city 490 cases of communicable diseases as follows chickenpox, 10, diphtheria 42 measles 291, mumps, 1 miscellaneous 3 scarlet fever 57, tuberculosis, 70 typhoid fever 11 and whooping cough 5 The record of typhoid fever in the city during the previous six years was as follows 1911, 140 cases, 1912 104, 1913, 20, 1914, 13, 1915, 16 and 1916 11 cases There was no poliomyelitis in the city during the year

County Tuberculosis Hospitals—Nassau County has contracted to purchase a 100-acre tract of land near Farmingdale, L I, and has issued bonds to meet the cost of site and buildings for a county tuberculosis hospital——In Broome and Chautauqua counties sites have been selected for hospitals and in Chenango County construction of a new hospital has been begun——Plans for the new Niagara County Hospital have been filed with the state commissioner of health for his approval——In Rensselaer, Warren and Livingston counties appropriations of $150,000, $50,000 and $35,000, respectively, were carried at the polls last November and the boards of supervisors are now considering sites In Rensselaer County the Albany Railroad has offered to give $150,000 toward the purchase of a site——Rocky Crest, the tuberculosis sanatorium for Cattaraugus County, recently opened is in the town of Olean, between Olean and Rock City The institution has accommodation for twenty-two patients, and Dr Edward Torrey, Olean, is the superintendent

New York City

Deaths from Influenza—Influenza was prevalent during December, and for the week ending December 16 there were 254 deaths from this and other respiratory diseases

Institutions Must Report Puerperal Septicemia and Suppurative Conjunctivitis—The health department will hereafter prosecute all violators of the Sanitary Code, which requires reports from institutions of all cases of puerperal septicemia and suppurative conjunctivitis under their care

Sweeping of Sidewalks Regulated—The board of health has added a section to the Sanitary Code under which house holders are held responsible for the cleanliness of their sidewalks All dirt must be swept up and removed Sweeping into the gutters is prohibited except between 6 and 8 in the morning

Free Dental Clinic for Children—The New York College of Dentistry announces that it will hold a free dental clinic at 205 East Twenty-Third Street, on Saturday afternoons for children between the ages of 7 and 14 There will be ninety chairs available This is the only free dental clinic now maintained by a dental college in this city

Personal—Dr William C Woolsey, Brooklyn, who has recently returned from service on the western war front in France, delivered an address before the Flatbush Medical Society, recently, on "Surgical Treatment of Infection in the French Army"——Dr E P Roberts, New York, has been appointed a member of the New York Board of Education

Alumnae to Meet—The Alumnae of the Woman's Medical College of the New York Infirmary for Women and Children will have a reunion dinner at the McAlpin Hotel, Monday evening, June 4, during the week of the meeting of the American Medical Association Further information may be obtained by communicating with the secretary of the Reunion Committee, Dr Ethel D Brown, 26 Gramercy Park

Fund for After-Care—Health Commissioner Emerson has turned over to the New York Committee on After-Care of Infantile Paralysis $39,287 60 to be added to the fund of $250,000 which the committee started out to raise This sum is the unspent balance of contributions made in August, 1916, on an appeal by the health department for funds to purchase braces and other appliances for children crippled by infantile paralysis

Bronx Doctors Raise Fees—The Bronx County Medical Society announces that physicians of the Bronx have adopted a new schedule of fees, under which night calls or emergency calls during the day will be $4 Calls during office hours requiring a doctor to leave his office before his accustomed time will be $3 Day calls will be $2, and office calls not less than $1 A like charge will be made for information given over the telephone

Institute Votes Special Compensation—The trustees of the Rockefeller Institute for Medical Research, in consideration of the decrease in the purchasing power of fixed salaries caused by the increased cost of living, voted additional and special compensation equal to 15 per cent of the current annual salary to be paid to each regular officer and employee of the institute, it being understood that this is not an increase in salary and does not create a precedent for the future Employees who have served less than one year are to be paid 15 per cent of the amount actually received up to the last day of December, 1916

City's Death Rate for 1916—Notwithstanding the epidemic of influenza and infectious colds, and the epidemic of poliomyelitis, during 1916, the death rate for the year is the lowest on record, 13 89 per thousand In 1900 the death rate was 20 57, and in 1910 16 00 This lowering of the death rate has been accomplished through the reduction in infant mortality In 1910 the death rate per thousand infants born was 125 6, during 1916 it was 93 1 The death rate from typhoid in 1910 was 0 12, and in 1916, 0 04 In 1912 there were seventy deaths from poliomyelitis, in 1913, fifty-four, in 1914, thirty-four, in 1915, thirteen and in 1916, 2,248 The death rate from pneumonia in all forms was in 1913, 0 13, and in 1916, 0 14 In 1900, the death rate from tuberculosis was 2 37, in 1910, 1 81 and in 1916, 1 50 The common infectious diseases of childhood have all shown a remarkable decrease, while the diseases of adult life, organic heart disease, nephritis and cancer, show proportionately more deaths than they did ten years ago The marriage rate for the year was 9 78, as against 9 68 for 1910 and 9 33 for 1915 A study of the marriage death and birth rates of the past ten years has convinced the recorder that the estimated population of the city, 5 602,841, is approximately correct

NORTH CAROLINA

District Society Meeting—At the annual meeting of the Fourth District Medical Society, held in Wilson, the following officers were elected president, Dr Kinchin C Moore, Wilson, vice presidents, Drs James C Grady, Kenly, and Edmund S Boice, Rocky Mount, secretary, Dr Charles L Swindell, Wilson, and treasurer, Dr Henry B Best, Wilson

Secret Medicine and Liquor Business—The January issue of the *Bulletin of the State Board of Health* is devoted entirely to the secret medicine business It is hoped that the next legislature, encouraged by the prohibition forces of the state may enact legislation relative to the sale of secret remedies which have become so frequently cloaks for the sale of diluted alcohol in the prohibition states of the South

OKLAHOMA

Endorse University Hospital—At the meeting of the Tulsa County Medical Society at the Oklahoma Hospital, December 18 a resolution was adopted to endorse the efforts of the administration to build and equip a hospital at Oklahoma City, to cost $200 000 and to be conducted under the supervision of the medical department of the state university

Personal—Dr Pleasant M Haraway, Marlow, was recently injured by a fall downstairs——Dr Horace Reed Oklahoma City, has recovered after an operation for appendicitis——Dr John H Harms and wife were recently injured when their automobile was driven into an open bridge——Dr Albert C Hirschfield, Oklahoma City, who is stationed on the border with the Oklahoma militia, recently fractured his thigh——Dr Welcome B Tilton, Clinton, has been appointed physician to the Uintah and Ouray Indian reservation, at Fort Duchesne Utah——Dr James G Rafter, Muskogee, city physician, was severely injured when his automobile was struck by a street car

OREGON

New Hospital Assured—The department of medicine of the University of Oregon has succeeded in raising by subscription, the $25,000 necessary to secure the $50,000 appropriated by the Oregon legislature a year ago This sum is to be expended in building a hospital on the medical school's new campus on Marquam Hill, overlooking Portland

New Health Board Officers—At the annual meeting of the state board of health, held in Salem, December 21 Dr Alvane C Seely, Roseburg was elected chairman, and Dr David N Roberg, Portland, was reelected secretary and state officer One of the most important features of the session was the subdivision of the board of health registration districts of the state under the acts of 1915 Two hundred and forty-eight subdivisions were made under this act

New Officers—The Portland City and County Medical Society at its annual meeting, December 20, elected the following officers president, Dr Joseph M Short, vice president, Dr Clarence J McCusker, secretary, Dr J Guy Strohm (reelected), and treasurer, Dr Katherine C Manion (reelected)——At the annual meeting of the Central Willamette Medical Association, held in Albany, December 7, Dr James H Robnett, Albany, was elected president, Dr Edward Bennett, Monroe, vice president, and Dr Gerald E Riggs, Albany, secretary-treasurer

PENNSYLVANIA

Health Commissioner's Secretary Resigns—Mr H Lindley Hosford, secretary to Dr Samuel G Dixon state commissioner of health has resigned to take charge of an educational campaign to be conducted in New York state

Smallpox Epidemic—Sporadic cases of smallpox have been reported from Allegheny County for several weeks and in the last two days three or four cases have been reported Assistant Chief Medical Inspector Hull of the state health department has been sent to Pittsburgh Two thousand five hundred notices were sent to physicians, school boards health boards and large employers of labor, and vaccination under the direction of the department of health has been started on a large scale

Personal—Dr William H Robinson, Roaring Springs fell on a pavement December 13 sustaining a concussion of the brain He is under treatment in the Mason Hospital——Dr Walter Lathrop was reelected surgeon and superintendent of the Hazleton State Hospital for the twentieth time, December 8 Dr Robert A Gaughan has been reelected assistant superintendent——Dr William S O Sherman Pittsburgh delivered an illustrated address before the Mahoning County Medical Society Youngstown Ohio on 'The Methods of Wound Treatment and Sterilization as Practiced in the French Army '

Philadelphia

Inspection Force Reduced—Because their services were no longer required twenty-seven medical inspectors and thirty-two nurses engaged by the bureau of health last summer during the prevalence of anterior poliomyelitis, have been discharged

Professorship Endowed—Miss Anna J Magee has presented to Jefferson Medical College $150 000 to endow the Magee professorship of the practice of medicine and clinical medicine Dr Thomas McCrae has been appointed to the newly endowed chair

After-Care of Paralysis Victims—The Emergency Aid organization has asked for $20,000 to carry out the after-treatment of 492 children crippled by poliomyelitis during 1916 Many of the victims need expensive braces and appliances Three hundred are receiving dispensary treatment, while the other 192 are being treated at hospitals

Personal—Dr Richard M Pearce Jr of the University of Pennsylvania will sail from New York January 15 to make a medical survey of the Argentine Republic and Uruguay——A fire in the home of Dr William W Keen January 2 caused much excitement, but little damage——Director Wilmer Krusen of the Department of Public Health and Charities was presented with a large grandfather s clock by the chiefs of bureaus and the employees of the department

Teaching Force Depleted by Pneumonia—Pneumonia and grip have so depleted the teaching force of the Philadelphia public school that the entire substitute list has been exhausted and thirty-eight classes are without teachers Reports of deaths from pneumonia during the last two weeks show the epidemic thus far has proved more fatal to adults than to children under 16 There were 167 deaths from lobar pneumonia as compared with sixty deaths from bronchial pneumonia

Medical Institutions—An addition to Bryn Mawr Hospital is to be two and one-half stories in height and will be of stone——A union between the Child Federation and the Public Education and Child Labor associations was formed January 1 to be known as the Child Federation The offices will be in the Witherspoon Building Albert Cross executive secretary of the Child Federation will be managing director and secretary of the combined organization It is hoped to reduce administration expenses so that more money will actually go into the work among children

Officers Elected—At the meeting of the Section on Otology and Laryngology College of Physicians Dr George C Stout was reelected chairman and Dr George M Coates clerk for the ensuing year——The West Philadelphia Medical Association has elected the following officers for 1917 president Dr William S Newcomet, vice president Dr Charles E Price, secretary Dr Henry G Munson, treasurer Dr Edmund L Graf and additional members of the board of directors to serve three years Drs Aaron L Bishop, Seth A Brumm, George F Levan and Justus Sinexon——At the meeting held January 3 the following officers and elective committees were chosen by the College of Physicians of Philadelphia for 1917 president Dr Richard H Harte vice president, Dr William J Taylor, censors Drs James Tyson William W Keen George E de Schweinitz and Thomas R Neilson, secretary Dr Francis R. Packard and treasurer, Dr John B Roberts

VIRGINIA

Marine Hospital for Norfolk—Hon E E Holland M C introduced a bill in the House of Representatives, December 21 appropriating $500 000 for a marine hospital at Norfolk

Memorial to Dr Johnston—The Richmond Academy of Medicine and Surgery December 23 adopted memorial resolutions regarding the death of Dr George Ben Johnston

Personal—Dr Hampden A Burke. Petersburg has been appointed a member of the State Board of Medical Examiners for the Fourth District, succeeding the late Dr Otho C Wright Jarratt

Medical Society Organized—The Bath County Medical Society having been granted a charter by the Medical Society of Virginia a meeting for permanent organization was called at Hot Springs December 27 at which Dr Lanier D Pole Hot Springs presided as temporary chairman and Dr Guy Hinsdale Hot Springs was temporary secretary

Contract for Hospital Awarded—The contract for the erection of the new negro pavillion of the Memorial Hospital Richmond has been awarded The building will cost when completed and equipped about $175 000 It is expected that it will be finished by November 1 It is to be seven stories and a basement in height and will contain accommodation for 146 patients forty in private rooms and 106 in wards

New Officers—At the annual meeting of the Richmond Academy of Medicine and Surgery December 12 the following officers were elected president Dr Greer Baughman vice presidents Drs Claude C Coleman William R Weisiger and Marvin E Nuckols, secretary Dr Mark W Peyser (reelected for the twenty-fourth consecutive term) assistant secretary Dr Emmett H Terrell and treasurer Dr James H Smith all of Richmond——At the fifty-fifth annual session of the South Side Virginia Medical Association held in Petersburg December 12 the following officers were elected president Dr Joel Crawford Yale, vice presidents Drs Fletcher J Wright Petersburg, James H Hargrave Hopewell and Edgar W Young McKenney and secretary-treasurer Dr Emmett F Reese Courtland Hopewell was selected as the next place of meeting

GENERAL

Physical Directors Elect Officers—At the meeting of the Society of Directors of Physical Education and Colleges held in New York December 29 Dr Joseph E Raycroft Princeton N J, was elected president Dr Edwin Fauver Rochester University vice president and Dr Paul C Phillips Amherst Mass secretary-treasurer (reelected)

Big Four Surgeons Hold Meeting—At the annual meeting of the Big Four Railway Surgeons Association held in Cincinnati December 14 the following officers were elected president Dr Granville Reynard Union City, Ind , vice presidents Drs Edward R Henning Bellefontaine Ind , James T Musselman Paris Ill and Adoniram J Banker, Columbus Ind and secretary-treasurer Dr William A Ewing Dayton Ohio

Tri-State Physicians Meet—At the thirteenth annual session of the Tri-State Medical Society of Arkansas Louisiana and Texas at Texarkana Ark December 19 Shreveport La was selected as the next place of meeting and the following officers were elected president Dr Jacob M Bodenheimer Shreveport vice presidents for Arkansas Dr Thomas F Kittrell Texarkana for Louisiana Dr Thomas E Wright Monroe and for Texas Dr Charles M Rosser Dallas, and secretary-treasurer Dr Edwin L Beck Texarkana

Large Amounts Needed for Charities—A campaign is in progress to raise $150 000 to enlarge the Norwegian Lutheran Deaconess Home and Hospital Chicago——Nearly $2 500 000 for the relief of Jewish war sufferers in Europe was pledged at a mass meeting in Carnegie Hall New York December 21——Jewish women of the United States under the leadership of Hadassah have inaugurated a campaign to raise $100 000 for a medical unit to be dispatched to Palestine to combat infectious disease and to improve sanitary conditions

Elections in Surgical Societies—At the annual meeting of the Southern Surgical and Gynecological Society, held in White Sulphur Springs W Va December 13 Dr William

D Haggard, Nashville, was elected president The society will meet next year at St Augustine, Fla ——At the twenty-sixth annual meeting of the Western Surgical Association, held in Minneapolis, December 16, the following officers were elected president, Dr Leonard Freeman, Denver, vice presidents, Drs Joseph Ransohoff, Cincinnati, and Roland Hill, St Louis, and secretary-treasurer, Dr Arthur T Mann, Minneapolis Omaha was selected as the next place of meeting

Civil Service Examination—The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist (male), to be held January 30 From the eligible list certification will be made to fill the vacancy in the Public Health Service, with a salary ranging from $2 000 to $2,500 per year Applicants must be citizens of the United States, between 23 and 40 years of age, graduates of medical schools of recognized standing and must have had at least three years' experience in epidemiologic work under federal, state or local authorities, and experience in laboratory technic with special reference to malaria and typhoid fever

Bequests and Donations—The following bequests and donations have recently been announced

St Luke s Hospital New York, $5,000 by the will of Mary C Elmendorf

Flagler Hospital St Augustine Fla Germantown (Pa) Dispensary and Hospital Morristown (N J) Hospital Babies Hospital, New York and St Mary s Hospital for Children New York, each $100 000 and St John s Guild, New York $50,000 by the will of Mrs Charles W Harkness

Hahnemann College and Hospital Philadelphia, a bequest of $40 000 by the will of Marcus N Darr, Buffalo N Y

Exeter (N H) Cottage Hospital a bequest of $10 000 by the will of Abner L Merrill Exeter

Children s Hospital Milwaukee, a donation of $150 000 from Ferdinand Schlesinger contingent on the raising of a like sum by the hospital association and $5 000, the receipts of a Horse Show held in Milwaukee December 20

New Journal Issued—The Rhode Island *Medical Journal*, owned and published by the Rhode Island State Medical Society has issued its first number under date of January, 1917 This new state journal succeeds the *Providence Medical Journal* published by the Providence Medical Association It will be issued monthly instead of bimonthly On an editorial page of this first issue it declares that 'it is a source of satisfaction in which every reader can share that the advertising pages of this journal are as clean as those of any medical publication in the country " The *Providence Medical Journal* first appeared in January, 1900 It has been edited during the sixteen years of existence by Drs George S Hershey, F T Rogers and J W Leech The editor of the new journal is Dr Roland Hammond On the editorial staff are Drs F T Rogers, J W Leech Alexander M Burgess and John E Donley Dr J F Hawkins is the business manager

Wellcome Prizes—The Association of Military Surgeons of the United States announced, January 5, the results of the Henry S Wellcome prize competition A gold medal and $300 were awarded to Capt Mahlon Ashford, M C, U S Army, for his essay entitled "The Most Practicable Plan for the Organization, Training and Utilization of the Medical Officers of the Medical Reserve Corps, of the U S Army, and of the Medical Officers of the Officers' Reserve Corps of the U S Army, in Peace and War" Asst Surg Gen William Colby Rucker, U S P H S, was awarded a silver medal and $200 for his essay, "The Influence of the European War on the Transmission of Infectious Diseases, with Special Reference to Its Effect on Disease Conditions in the United States" Lieut Henry C Coe M R C, U S Army, New York, and P A Surg James R Hurley, U S P H S, each received honorable mention and a life membership in the association

Fraudulent Drug Traffic Checked—Fraudulent traffic in imitations of certain synthetic drugs used extensively by physicians has been checked through the joint action of federal, state and municipal officials, according to the annual report of the Chief of the Bureau of Chemistry, United States Department of Agriculture Because of the high prices demanded for such drugs, cheap imitations, with little or none of the therapeutic properties of the genuine, have been put on the market under the names and labels of the real drugs Shipments were seized, and a number of individuals were prosecuted successfully, under the Federal Food and Drugs Act, and indictments were procured under the postal laws, but the traffic could not be wholly suppressed under the federal laws, nor could all offenders be reached The department of agriculture thereupon laid the matter before the state and municipal officials, with the result that many prosecutions were instituted and seizures made by them Ultimately, through joint action, the traffic was suppressed

Conference on Medical Preparedness—At the request of the Council of National Defense and the secretary of war, deans and representatives from more than eighty medical schools of the country convened in Washington January 6 The preliminary meeting was called to order by Dr Franklin H Martin, Chicago, who stated that the object of the meeting was to agree on some basis of cooperation between the medical schools of the country and the army and navy, whereby the depleted medical branches of the service might be recruited to full strength from the eligible graduates of the medical schools this summer Dr Edward Martin of the University of Pennsylvania was called to the chair and introduced Surgeons-General Gorgas and Braisted, who set forth the needs of the army and navy medical departments Plans for courses on military and naval surgery were presented by Col William H Arthur, director of the Army Medical School, and Surg Edward R Stitt of the Navy Medical School The curriculum provides for two lectures a week, the course to begin on February 1 Dr Victor C Vaughan of the University of Michigan presented a resolution favoring universal military training and petitioning the secretaries of war and of the navy to supply the medical schools with instructors on medical surgery and sanitation Dr Arthur A Law of the University of Minnesota presented a resolution petitioning Congress to modify the army act of June 3, 1916, so as to make express provision for the detailing of medical officers of the army as instructors in military surgery and hygiene in medical colleges Both of these resolutions were adopted Major Robert E Noble of the army presented the needs of the Medical Corps and stated that by July, 1920 the army would need 1 110 medical officers to complete its full quota In the afternoon, the members of the conference were received by the president and secretaries of war and of the navy Secretary Baker welcomed the officers and thanked them for their interest in medical preparedness

FOREIGN

No Importation of "Patent Medicines" Into Germany—The *Munchener medizinische Wochenschrift* cites a recent official order to the effect that the decree of Feb 25, 1916 prohibiting importation of unnecessary articles (*entbehrliche Gegenstande*), applies until further notice to proprietaries (*Geheimmitteln*)

Journal Founded as Official Organ of Welfare Work for Disabled Soldiers—The affiliated agencies throughout the German empire working to improve the condition of those maimed and crippled by the war have combined and the central board is issuing a monthly to serve as the forum for all matters of the kind and possibly to serve later as a general forum for welfare work of all kinds The editorial staff consists of A Liebreich, Magistratsrat in Berlin, and W Gerth, Amtsrichter L Voss of Berlin is the publisher, the yearly subscription is about $4

Public Education on Disease—The *Deutsche medizinische Wochenschrift* states that even during the war the demands continue for loans of the collections at the central headquarters at Berlin of the medical postgraduate instruction system Many requests come from the countries now occupied by troops The collections are loaned free of charge for popular lectures given by nurses hygienists and others, as well as by physicians Lantern slides and wall pictures are most in demand, especially sets of slides on venereal diseases, bacteriology, care of the sick, anatomy, prophylaxis and care of the health in general, tuberculosis, epidemics, etc A special catalog is sent on demand The headquarters of the postgraduate work are at the Kaiserin Friedrich-Haus, Luisenplatz 2, Berlin

Alvarenga and Jubilee Prizes Awarded in Sweden—The Alvarenga prize is awarded annually by the Swedish Medical Association The 1916 prize was given to Dr E Nilsson for his comprehensive study of the physical development and fitness for military service of the young men of Sweden between 1861 to 1913 The association distributed eleven other prizes The jubilee prize was given to H B Lundborg for his medical-biologic study of generations of certain families in Sweden totaling 2,232 members He traced the working of the mendelian laws of heredity through nearly 200 years A work by Lundborg on this topic of race hygiene and its importance in modern culture was published in the *Journal of Nervous and Mental Disease*, 1912, No 11, p 39 The Journal, June 15, 1912, p 1890, also summarized some of his research on deafmutism in 414 families

CANADA

Infantile Paralysis Disappearing in Ontario—Only five cases of infantile paralysis with one death were reported in December in the Province of Ontario, as compared with seventy-six cases and seven deaths in September, thirty-one cases and seven deaths in October, and ten cases and two deaths in November

Medical Inspection of Schools in Toronto—The vote on the amalgamation of the medical inspection department of the Board of Education, Toronto, with the Department of Public Health, January 1, resulted in a majority of nearly 14 000 for the amalgamation It will be necessary for the Toronto City Council to secure the sanction of the Ontario legislature to the vote of the people before amalgamation is finally effected Last year the city council unanimously approved of the amalgamation The vote for amalgamation stood as 3½ 1

Personal—Col James A Roberts, Toronto, in command, of the University of Toronto Base Hospital, Saloniki, and Col Herbert S Birkett Montreal, have been made Companions of the Bath——Capt J Harris McPhedran, Toronto, on leave of absence, has sailed for England——Capt D Edwin Robertson, Toronto, who has been on active service for over two years, has arrived home and will reenter professional life He will be first assistant to Dr W Edward Gallie, who has been chief surgeon at the Hospital for Sick Children, Toronto, since the departure of Dr Clarence L Starr for special operative work in London——Dr Walter W Wright, Toronto, has enlisted for overseas service

University News—The Senate of Queen's University, Kingston Ont, has issued a memorandum covering its objections to the action of the University of Toronto in deciding to establish in 1918 a six-year academic course in medicine A conference had been held between representatives of the two universities but no other universities interested in Canada had been asked to participate in that conference Queen's University says that the proposals come at a time when there is an unusual demand for the services of medical men from the British and Canadian governments, and that the great need for medical men will not immediately cease when war is over

Colonel Bruce Not Upheld—The official report of the Board of Inquiry into the report and charges of Col Herbert A Bruce, Toronto, who went overseas last July, deputed by the Canadian government, or the Minister of Militia of that day, as Inspector General, to make an exhaustive inquiry into the condition of the army medical services of Canada and the Canadian hospitals abroad, has just been, made public by the Canadian High Commissioner It upholds Surg-Gen G Carleton Jones, and states that the charges made by Colonel Bruce have not been substantiated, nor does the Board of Inquiry consider that the changes recommended in Dr Bruce's report are necessary or advisable The announcement is made in the public press that Colonel Bruce is returning to Toronto, and that Surgeon-General Jones will at once reassume his command

Workmen's Compensation and the Doctors' and Hospital Fees—Representatives of the Ontario Medical Council, the Ontario Medical Association and the Academy of Medicine, Toronto, joined with representatives of the labor interests on January 5 to discuss the payment of doctors' and hospital fees by the Workmen's Compensation Board, before the Private Bills Committee of the Ontario legislature The manufacturing interests were also represented Dr Edmund E King, president of the Ontario Medical Council, presented the case for the physicians and stated that the profession was far worse off under the commission than previously, when practically all employers paid the professional bills of employees injured in their work The labor interests unanimously supported the physicians in asking that these bills be paid by the commission The manufacturers, of course, opposed the proposition, as it would mean a greater assessment on the industries The government made no announcement as to its intention to amend the bill in the direction sought but the prime minister of the province appeared sympathetic The total number of accidents in the province during the past year was 26,092

LONDON LETTER

London, Dec 18, 1916

The War

FOOD CONTROL

The continuance of the war has created some difficulty with regard to the supply of food, but this is much less acute and has developed much later than in Germany A food controller has been appointed, and the following legislation is expected soon 1 Meat Institution of a compulsory meatless day, Thursday will probably be the day selected On that day it will be unlawful for any person to sell or consume, either in places of public eating or in private houses, meat, game and poultry It is understood that fish will not be included in the order 2 Sugar "Rationing" by the state, probably by a system of tickets There is enough sugar to go round at present, it is the old system of distribution that is at fault 3 Bread Maize, barley and oats to be included among the ingredients for baking Maize blends most easily, barley is the most palatable, and oats the most nutritious of the three There may not be much maize to spare, as it can be put to other and even better uses in our present situation 4 Potatoes A big program of saving to be undertaken to insure next season s supplies 5 Pigs As urgent a matter as potatoes, both provide a great part of the staple food of the working classes Special steps are to be taken to increase largely the number of pigs in this country The space to be allotted to the transport of tea will in future be much curtailed

VITAL STATISTICS

Vital statistics during the disturbing influence of the greatest of all wars are of special interest The quarterly return of the registrar general for the three months ending with September have just been issued The birth rate has shown a slight rise It is now 21 7 per thousand of the population, as compared with 19 5 the rate in the fourth quarter of 1915, which was described as the lowest birth rate recorded in any quarter since the establishment of civil registration The deaths registered amounted to 102 457 civilian and noncivilian This is a rate per thousand of 11 2 Infant mortality, measured by the proportion of deaths under 1 year to registered births, was equal to 79 per thousand, being 41 per thousand below the average in the ten preceding third quarters, and equal to the lowest recorded quarterly rate, namely, that for the September quarter, 1912

Abolition of Compulsory Latin for Medical Students

The preliminary examination which every youth must pass before being registered as a medical student included Latin as a compulsory subject The modern tendency to exalt science at the expense of the classics has brought about a position which has compelled the General Medical Council no longer to require a knowledge of Latin—which was usually very elementary—by medical students For fourteen years the University of London has not required Latin for its matriculation examination, and within the last two years the Universities of Liverpool, Leeds, Sheffield and Birmingham have followed The medical council was therefore in the anomalous position of requiring knowledge of a subject which these universities do not require of students undertaking medical or other courses After an animated debate in which several speakers insisted on the great advantage of a knowledge of Latin to the student in his medical studies, the council decided by a majority of 21 to 12 to accept the examinations of these universities This conclusion was something of a compromise, for Latin still remains compulsory for what are called "junior grade" candidates for admission to the medical curriculum These are boys who usually leave school at an earlier age than the "senior grade' candidates mentioned above and do not produce, as evidence of general knowledge certificates of examination by a university Latin is retained as a compulsory subject for them on the ground that there is at present no satisfactory substitute for that language in the educational scheme suitable to a boy of 15 The contribution to the discussion at the medical council of a brilliant scholar in the wide sense, Sir Clifford Allbutt, is worthy of attention He said that for years he had been against any particular subject being made compulsory for entrance It was perfectly amazing how boys wriggle through an examination in Latin and Greek with so little knowledge of either, and the time devoted to them was not worth it If the average man was asked to translate or go behind the Latin words he had used, it would be found they had been used in a parrot like way and learned by heart as ladies learn the names of plants What was desired was to raise the literary quality of teaching, which could be attained by substituting two modern languages—French and Italian or French and Spanish—for Latin, so that the students would come up with a fair amount of literary cultivation

A Leper in a Lodging House

In the court of appeal, a point of interest to the profession has been decided An action was brought by a lodging house keeper against a physician and a woman for fraudulent representation and conspiracy The latter engaged rooms for her father, who was a leper and died from the disease after a year The plaintiff alleged that she had suffered damage in consequence In answer to her question, the leper's physician said that he was not suffering from an infectious disease but that great care should be taken He believed that leprosy was not infectious In answer to questions put by the judge, the jury decided that leprosy was infectious and that the defendants had by fraudulent misrepresentation induced the plaintiff to admit the leper They assessed damages at $1,250 After argument, however the judge held that the defendants were entitled to judgment because there was no implied term or warranty in the compact of tenancy that the leper was a fit and proper person to occupy the rooms, and that the physician was not bound in law to make any disclosure as to the condition of the patient This judgment has been upheld by the judges of the court of appeal

Anthrax in Shaving Brushes

An account was recently given (The Journal, Sept 30 1916, p 1030) of cases of anthrax due to contaminated shaving brushes The subject has again arisen in Liverpool, where two specimen shaving brushes infected with anthrax have been discovered At a meeting of the Liverpool health committee, Dr Hope health officer, said that the hairs of which brushes were made had probably been taken from infected skins All brushes of the kind which could be found in the city had been taken and destroyed One of the brushes had been discovered in a curious way A man bought it in Liverpool and used it on the way to Halifax, N S When he arrived there he was found to be suffering from anthrax, and the fact was reported to Liverpool A number of the brushes had then been bought Their origin had been traced *to foreign firms on the continent*

PARIS LETTER

Paris, Dec 14, 1916

The War

TREATMENT OF WOUNDS OF THE KNEE

Professor Depage of Brussels has just reported to the Societe de chirurgie de Paris statistics of 124 wounds of the knee treated at the ambulance hospital 'Ocean," at La Panne since Dec 20, 1914 Eighty-three were serious cases, which he classifies in two categories (1) wounds without large separation of the joints and without very serious lesions of the bone extremities, and (2) wounds of the joints with serious and wide lesions of the bone extremities

These wounds have been treated in various ways Until Sept 10, 1915, Depage drained the joints during a longer or shorter period, after the cleansing and excision of torn tissues, making one or several dressings every day In each instance the wound was irrigated with antiseptic solutions (oxygenated water, formaldehyd or phenol [carbolic acid]) The wounded limb was kept rigid either by a bridged apparatus or by a drain During a second period, until July 1, 1916, Depage applied the method of Carrel after ample loosening of the joints During a third period he practiced systematically the immediate closing of the joints of the knee despite extensive lesions of the bone Until that time he had sutured the synovial membrane immediately only in articular wounds of the knee without lesions of the bone After a careful dressing of the region, the wounded and bruised tissues were excised, the bullet or foreign matter removed, the joints freely washed with Dakin s solution or with ether, and the bones curetted or scraped with a gouge, a small rubber drain being left in the joints for twenty-four hours in contact with the lesions of the bone By some means immobility was secured When this method is employed, the temperature is generally about 37 5 C (99 5 F) on the evening of the operation, in two or three days it returns to normal *in eight days massage* is begun with passive movements, and in fifteen days the patient is given a mechanotherapeutic course of treatment In certain cases, however, the temperature climbs to 38 C (100 4 F) and even 38 5 C (101 3 F) *The local condition then dictates the course to be followed* If the joints do not show any reaction, further treatment is deferred and order is generally restored within five or six days If infection appears certain, arthrotomy is resorted to, and the Carrel treatment is given when the lesions of the bone are not too extensive If, on the other hand, these lesions are serious, resection is made without delay

The value of the three methods successively employed by Depage in the treatment of articular wounds of the knee is clearly shown in the following table

	First Period 29 Wounds Per cent	Second Period 32 Wounds (Carrel Method) Per cent	Third Period 22 Wound (Closing of Wound) Per cent
1 Cures with restitution of movements	24 10	46 87	86 36
2 Suppurations of the knee	68 80	28 12	4 54
3 Ankylosis with or without resection	37 93	18 75	13 63
4 Amputations of the thigh	34 40	15 62	0
5 Deaths	13 88	3 06	0

TREATMENT OF WOUNDS OF THE BREAST

In accordance with an opinion still too much in vogue it is believed that most penetrating wounds of the thorax heal *without the employment of operative treatment Drs Combier* and Murard have voiced their disapproval to the Societe de chirurgie de Paris They have shown that the death rate among the wounded so treated is considerable, at least among those with large wounds in which hemorrhage shows no tendency whatever to cease, as these patients lose too much blood Combier and Murard have also tried to intervene in these cases by suture of the bleeding lung and suppression of the pneumothorax In three particularly threatening cases they have employed successfully the following mode of treatment resection, under local anesthesia, or a simple injection of morphin, of the fractured ribs on an area just wide enough to furnish ready access to the lung, exteriorization and exploration of the affected pulmonary lobe, which usually is easily performed, suture of the pulmonary wound with the aid of long U-shaped points, anchoring of the sutured wound to the interior surface of the thorax, if possible, so as to permit the lung to recuperate its play , drainage by means of a tampon of the membrane lining the interior of the ribs The thoracic lining could also be entirely sutured without tamponing by making an incision for breathing in case of pleural effusion There are, however, more favorable methods, which are successful in less serious cases such as simple occlusion of the wound with a suture, employed by old school surgeons In wounds in which the air comes in contact with the membrane lining the interior of the ribs, it is sufficient simply to close the wound to prevent infection treating it as a simple pneumothorax requiring rapid resorption This procedure has often given Combier and Murard good results

Relative to this report, Drs Rochard, Delorme and Baudet remind us that they had ceased, long before the war, to oppose operative treatment in serious cases of wounds of the breast

THE TREATMENT OF SHOCK IN WAR SURGERY

Professor Depage of Brussels has made a report on this subject to the Societe de chirurgie de Paris He points out that vasoparalysis constitutes one of the most important phenomena of shock The circulatory field becomes too large for the quantity of blood in the veins, the function of the heart becomes impaired, blood accumulates in the arteries and the blood pressure becomes lower as the extremities become cold and cyanotic The treatment of shock calls for (1) a special position of the patient in which the abdominal vessels are at a higher level than the heart and the brain (this necessitates merely adjustment of his bed, (2) heat, (3) restoration of blood pressure to a sufficiently high degree either by increasing the quantity of the blood fluid (injection of Locke's serum), or by determining the vascular constriction (digitalis, strychnin, camphorated oil)

VESICAL CALCULI IN WOUNDS OF THE BLADDER

Dr Legueu, clinical professor of diseases of the urinary tract of the Faculte de medicine de Paris has pointed out to the Academie de medecine that about one third of the wounds of the bladder develop one or more calculi within a few months Legueu estimates that these calculi have less to do with infection than with a concomitant fracture of the pelvis, such as is found in all wounds developing calculi While serious disorders are given attention, fragments and splinters of bone frequently fall into the bladder, so that after the healing of all exterior wounds one finds an internal osteopathic abscess visible only with a cystoscope For some time the cavity of the bladder continues to receive from the focus of the fracture minute particles of bone which enter the bladder, causing calculi Hence the osteovesicular abscess is the primary lesion from which complications result Legueu has attempted operative treatment for these abscesses, but the disorders necessarily caused in healing them are very complicated and postpone the patient's recovery several months He has relieved a patient of his calculus in a few days by lithotrity and he advises that the abscess be permitted to close itself spontaneously

NEEDLE WOUND OF THE HEART

Dr Marais reported to the Societe de chirurgie de Paris the case of a soldier who thrust a needle into his heart with the intention of killing himself and who died suddenly twenty-four hours later without having shown any sign of internal hemorrhage in the meantime. At the necropsy there were found an abundant hemorrhagic infiltration in the anterior mediastinum and an infusion of 120 gm of blood in the pericardium In the middle of the latter infusion was found the needle which had caused death No trace of its passage was visible on the skin On the anterior surface of the right ventricle was a wound 4 cm long and 2 5 cm in average width It was a superficial wound above but deep and penetrating in the lower part. This leads one to suppose that the needle after having perforated successively the thoracic wall and the pericardium (the victim was very thin), was maintained in place by one extremity in the thoracic wall, while the other extremity worked its way through the myocardium causing a slow, insignificant hemorrhage with no clinical signs, which later suddenly became abundant and fatal Marais was of the opinion that if the diagnosis had been made earlier, surgical intervention would probably have been successful

Reorganization of Physical Education in Public Instruction

A commission has just been instituted at the ministry of the interior for the purpose of studying the reorganization of physical education in public instruction Among the members of this commission are Drs Gilbert and Weiss professors of the Faculte de medicine de Paris, and Henri Mery, Albert Mathieu and Mosny, physicians at the hospitals of Paris

The Decimal Classification in the Numbering of Surgical Matter

The military health service has just systematized part of its surgical matter by introducing the decimal classification at the suggestion of Mr Paul Woog Until recently, when a very fine catgut ligature was desired specifications were given for triple zero' 'double zero or single zero" depending on whether the diameter of the catgut was 0 2, 0 3 or 0 4 mm A silk ligature of 0 3 mm was designated as No 2 in the health service and was called zero in the civil service. An O' drain measured 4 mm in exterior diameter and a No 6 drain, 20 mm This illogical and complicated classification has recently been replaced by a simple and rational one The figures adopted for catgut silk ligatures drains and rubber tubes will designate in tenths of a millimeter the outside diameter of these objects Thus a No 6 ligature is six tenths or 0 6 mm in diameter a No 10 ten tenths, or 1 mm in diameter, a No 130 drain will be 130 tenths or 13 mm in diameter, etc

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Marriages

Manley Hunter Eames M D Oak, Va to Miss Mary Virgilia Warburton of Williamsburg Va at Richmond, Va December 18

Robert Parke Bay M D, Baltimore to Miss Nancy M McNabb of Harford County, Md., at Baltimore December 23

Grover Cleveland Goudy M D, Canton Ohio, to Miss Edna Amanda Hilger of Pittsburgh December 30

Clyde James Bibb M D, to Miss May Hollern, both of Portage Pa at Hollidaysburg Pa November 5

Irving William Fraim M D, Waltham Mass, to Miss Leola Basley of Worcester Mass, December 19

Gustav Kolischer, M D Chicago, to Miss Juliette Lippe of New York December 26

Frederick G Fox M D to Miss Anna Kuehn both of Chicago December 31

Deaths

Arthur Curtis Rogers, M D, Faribault, Minn , a pioneer and leader in the work for defectives, died in the University Hospital Minneapolis, January 2, from pernicious anemia Dr Rogers was born near Decorah, Iowa July 17, 1856 After graduation from Earlham College, Richmond, Ind, he taught school and then became steward of the State School for Feebleminded, Glenwood, Iowa His interest in the work caused him to take up the study of medicine in the State University of Iowa, Iowa City, from which he was graduated in 1883 He went to Oregon as head physician and principal of the State School for Indians, Forest Grove, and two years later was called to Minnesota to become superintendent of the Minnesota School for Feebleminded and Colony for Epileptics at Faribault a position which he held until the time of his death The institution which then had about fifty inmates now employs about 300 teachers and attendants, cares for more than 1 600 inmates and has been regarded for many years as one of the model institutions of the country Dr Rogers was a Fellow of the American Medical Association president of the Minnesota Conference of Charities and Correction in 1898 and of the Minnesota Academy of Social Science in 1911 He was secretary and treasurer of the American Association for the Study of the Feebleminded and a member of the commission to revise Minnesota laws relating to children

Hon Sir Frederick William Borden, K C M G, minister of militia and defense of Canada from 1898 to 1911, died at his home in Canning N S January 6 He was born May 14, 1847 the son of Dr J and Maria F Borden His preliminary education was received at the University of Kings College, Windsor, N S, and his medical course was taken at Harvard Medical School, from which he was graduated in 1868 He was appointed assistant surgeon of the Sixty-Eighth Battalion Kings County' Militia in 1869, and served continuously thereafter in the militia and Canadian Army Medical Corps, of which he was at the time of his death surgeon colonel In 1874, he was elected to the House of Commons from Kings County, N S, and has served continuously, excepting during the years from 1883 to 1886 To Sir Frederick Borden's efforts were due in a large measure the efficient organization of the Canadian troops which was of so great assistance to Great Britain during the Boer War, in which his son, Lieut Harold L Borden, was killed in action

James Henry, M D., Orangeville, Ont , University of Toronto Ont., 1863, aged 73 a member and for several years vice president of the Ontario Medical Council, for more than half a century a practitioner of Dufferin County, surgeon in the Canadian militia and lieutenant colonel on the retired list of the thirty-sixth infantry, coroner for the counties of Peel Grey Dufferin and Wellington and division surgeon for the Canadian Pacific Railroad, died at his home, October 29, from cerebral hemorrhage

Carl Johann Luyties, M D, St Louis, Missouri Medical College St. Louis 1884, Hahnemann Medical College Philadelphia, 1885 aged 56 a Fellow of the American Medical Association a member of the visiting staff of the St Louis Childrens Hospital and St Louis City Hospital, a specialist on diseases of children professor of chemistry and later professor of diseases of children in the Homeopathic Medical College of Missouri St Louis, died at his home, December 23 from cerebral hemorrhage

Edward Marshall Buckingham, M D, Boston, Harvard Medical School 1874, aged 68, a Fellow of the American Medical Association and New England Pediatric Society instructor in diseases of children in his alma mater and for more than twenty years treasurer of the Massachusetts Medical Society, for many years secretary of the staff of the Boston City Hospital and visiting physician to the Children's Hospital, died at his home, December 23, from angina pectoris

James Wendell Reber, M D, Philadelphia, Beaumont Hospital Medical College St Louis 1889, aged 50, a Fellow of the American Medical Association, formerly assistant physician at the State Hospital for the Insane, Norristown, Pa , professor of ophthalmology in Temple University and the Philadelphia Policlinic, once president of the American Academy of Ophthalmology and Oto-Laryngology, died at his home in Germantown December 30 from pneumonia

Matthew Watson O'Brien, M D, Alexandria, Va , Medical College of Ohio Cincinnati, 1876, aged 61, a Fellow of the

American Medical Association, formerly vice president of the Medical Society of Northern Virginia, and president of the Southern Railway Surgeons' Association, local surgeon for the Southern, Chesapeake and Ohio, Washington and Old Dominion and Washington Southern railroads, died at his home, December 28

Frederick David Bentley, M D, Portage, Wis , Rush Medical College, 1886, aged 52, a Fellow of the American Medical Association, assistant superintendent of the Cook County Insane Hospital, Dunning, from 1889 to 1890, for several terms health officer of Portage, local surgeon to the Chicago, Milwaukee and St Paul System, who built and maintained the first hospital in Portage, died at his home, December 23

William H White, M D, Bloomfield , University of Pennsylvania, Philadelphia, 1860, aged 79, a Fellow of the American Medical Association, president of the Bloomfield Press Company and a member of the Bloomfield Board of Education, a veteran of the Civil War in which he served as surgeon of the Seventy-Ninth Pennsylvania Volunteer Infantry, died at his home, December 28, from pneumonia

Miah B Sullivan, M D, Dover, N H , New York University, New York, 1880, aged 59, a member of the New Hampshire Medical Society, and formerly president of the Strafford District and Dover medical societies, for many years a member of the surgical staff of the Wentworth Hospital once state senator, founder of the Dover *Evening Star,* died at his home December 26

Alexander H Saxton, M D, Baltimore, University of Maryland, Baltimore, 1863, aged 75, attending physician to the Baltimore General Dispensary and physician to St Mary's Industrial House of the Good Shepherd, for ten years vaccine physician and for eight years pension surgeon, state medical examiner for the Royal Arcanum, died at his home, December 24, from heart disease

William S McCormick, M D, Philadelphia, Medico-Chirurgical College of Philadelphia 1903, aged 40, formerly a Fellow of the American Medical Association, for five years a medical inspector for the board of health of Philadelphia, formerly assistant demonstrator of anatomy in his alma mater, died in the Methodist Hospital, Philadelphia, December 30, from diabetes

Peter Sebastian Ganz, M D, Louisville, Ky , University of Louisville, Ky , 1894, aged 55, a member of the Kentucky State Medical Association, and a director of the St Lawrence Home for Boys, for several years a member of the faculty of his alma mater and a member of the staff of Sts Mary and Elizabeth's Hospital, formerly a druggist, died at his home, December 23

James A Clyne, M D, Joliet, Ill , Albany (N Y) Medical College, 1886, aged 56, a Fellow of the American Medical Association, formerly president of the Will County Medical Society, local surgeon of the Chicago and Alton Railroad for twenty years, and in 1893 and 1894 health officer of Joliet, died at his home, November 8, from carcinoma of the throat

Julius Alexander Becker, M D, New York, New York University New York 1898, aged 41, a member of the Medical Society of the State of New York, professor of practical anatomy in the New York University and Bellevue Medical College, assistant surgeon to Bellevue Hospital and police surgeon, died at his home, December 25, from pneumonia

James Graham Wittenmyer, M D, Peebles, Ohio, Starling-Ohio Medical College, Columbus Ohio, 1913, aged 29, a member of the Ohio State Medical Association, lieutenant in the Medical Corps of the Ohio National Guard and assigned to duty with Field Hospital No 2, Columbus, died in the Base Hospital at Fort Bliss, Texas, December 9

Charles N Wyatt, M D, Easley, S C , Southern Medical College, Atlanta, Ga , 1887, aged 53, a Fellow of the American Medical Association, twice president of the Pickens County Medical Society , a trustee of the Medical College of South Carolina, local surgeon of the Southern Railroad, died at his home, December 27, from chronic nephritis

John R Borland, M D, Franklin, Pa , Philadelphia University of Medicine and Surgery, 1865, aged 88, a member of the Medical Society of the State of Pennsylvania, formerly professor of theory and practice of medicine and dean of the faculty of the Georgia Eclectic Medical College, Atlanta, died at his home, December 26

Ethelbert Fremont Geer, M D, St Paul, University of Vermont, Burlington, 1884, aged 58, a Fellow of the American Medical Association, formerly secretary of the Ramsey County Medical Society, for three years a member of the St Paul workhouse board, died at his home, December 24, from cerebral hemorrhage

Edmund Doe Spear, M D, Boston, Harvard Medical School, 1874, aged 64, formerly a Fellow of the American Medical Association, a member of the Massachusetts Medical Society and American Otological Society, a specialist on diseases of the nose and throat, died at his home, December 25, from pneumonia

George T Thomas, M D, Rogers, Texas, Missouri Medical College, St Louis, 1885, aged 61, a member of the State Medical Association of Texas, and once president of the Bell County Medical Society, died suddenly at Jonesboro, Texas, December 21, from cerebral hemorrhage

John Snyder, M D, Mecosta, Mich , Detroit College of Medicine and Surgery, 1886, aged 54, a Fellow of the American Medical Association, who was obliged to give up practice five years ago on account of disease of the spine, died at his home, December 11, from angina pectoris

Kenneth Charles Richman, M D, Philadelphia, Jefferson Medical College, 1911, aged 30 a specialist in laryngology and rhinology, a member of the staff of the Philadelphia General Hospital and Rush Hospital, died at his home, December 8, from heart disease

Joseph Huston McKee, M D, Carnegie Pa , Western Pennsylvania Medical College, Pittsburgh, 1891, aged 54, a Fellow of the American Medical Association, and president of the Carnegie Medical Association, died at his home, December 25, from pneumonia

E Lloyd Irvine, M D, San Francisco, University of Oregon, Portland 1905, aged 33, formerly a practitioner of Portland and a Fellow the American Medical Association, died in St Luke s Hospital, San Francisco, December 4, from lobar pneumonia

Benton F Tatum, M D, Stuart, Va , University of the South, Sewanee, Tenn , 1900, aged 45, a member of the Medical Society of Virginia, who underwent surgical operation recently, in Richmond, died at his home, December 29

Cummins Butterfield Jones, M D, Los Angeles, Miami Medical College, Cincinnati, 1873, aged 67, formerly superintendent of the Ohio Soldiers' and Sailors' Orphans Home, Xenia, died at his home, December 23, from heart disease

Charles C Dellenbaugh, M D, Portland, Mich , University of Buffalo N Y, 1859, aged 82, formerly a Fellow of the American Medical Association, for more than half a century a practitioner of Portland, died at his home, December 25

Frank Gamon, M D, Erie, Pa , Medico-Chirurgical College of Philadelphia, 1903, aged 36, a member of the Medical Society of the State of Pennsylvania, a specialist in anesthesia, died in Hamot Hospital, Erie, December 23

Joseph Dobson, M D, Fairfield, Conn , United States Medical College New York, 1880, aged 79, surgeon in the British army during the Boer War, died in Bridgeport Hospital, November 25 from chronic interstitial nephritis

Norman J Cranmer, M D, River Falls, Wis , Detroit Medical College, 1870, aged 80, for forty years a practitioner of Van Buren, Allegan and Missaukee counties Mich , died at the Hotel Gladstone, River Falls, December 7

William J Dillenback, M D, Brentwood, Md , George Washington University, Washington, D C 1888, aged 51 a member of the Medical Society of the District of Columbia died at his home, December 27 from diabetes

James W Fitzmaurice, M D, Chicago; Rush Medical College, 1889, aged 56, formerly a member of the Illinois State Medical Society, died at his home, December 29, from uremia

Effa A Osborn Norton, M D, Chicago, Curtis Physio Medical Institute, Indianapolis, 1896, died at her home, December 22, from diabetes

Lothar M Schwarz, M D, Chicago, Jenner Medical College 1897, aged 54, died at his home, December 21, from cirrhosis of the liver

John Capell, M D, Watson, Ark , Chattanooga (Tenn) Medical College, 1907, died in St Joseph's Hospital, Memphis, Tenn , November 21

Warner Lewis, M D, Wayland, Va , University of Maryland, Baltimore, 1867, a Confederate veteran, died at his home, December 10

Reuben Eiseman, M D, Latrobe, Pa , Jefferson Medical College, 1887, aged 55, died at his home, December 13

Eben Vernon, M D, Los Angeles, Atlanta (Ga) Medical College, 1859, aged 78, died at his home December 16

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

IRON CITRATE GREEN

Report of the Council on Pharmacy and Chemistry

H K Mulford Company and E R Squibb and Sons submitted to the Council ampules containing solutions of iron citrate green It thus became necessary to consider the eligibility of iron citrate green itself for admission to New and Nonofficial Remedies As the rules of the Council provide that nonessential modifications of official or nonproprietary preparations will not be recognized, the above named firms were asked to state what advantages if any, the so-called iron citrate green had over the official iron and ammonium citrate In reply the H K Mulford Company wrote that it had come to the conclusion that iron citrate green and ampules thereof would undoubtedly be considered by the Council as a nonessential modification of an official product, adding

> It seems to differ from the official ferric citrate so far as essentials go only in color but custom which is exceedingly hard to change in South America demands that this green variety of ampules be used in place of the official product

In reply to a similar letter of inquiry E R Squibb and Sons wrote

> Iron citrate green (iron and ammonium citrate green) differs from the U S P iron and ammonium citrate in that it contains less iron and more citric acid and more ammonium citrate than does the latter It is of course a modification of the official salt and is supplied to meet a real demand Its reaction is quite decidedly acid and our present stock contains Fe slightly below the U S P requirements for iron assaying 15 74 per cent instead of 16 per cent Fe The tests used to control its quality are those for the official product except as before indicated it is always acid instead of neutral as the U S P requires for that salt'

The smaller iron content (98 per cent of the U S P requirement) of the green variety referred to by E R Squibb and Sons is so small as to be negligible Further the low iron content as well as the acidity of the green salt would appear to be detriments rather than advantages Inasmuch as no evidence has been presented to show that iron citrate green is superior in any way to the well-known iron and ammonium citrate the Council held that iron citrate green, and with it the dosage forms was ineligible to N N R

The preceding report was submitted to the Mulford Company and to E R Squibb and Sons for comment before publication The former firm replied that in the present case it felt bound to supply the existing demand the latter replied that, to give the Council its support in this matter, the sale of iron citrate green and ampules thereof would be discontinued

MORE MISBRANDED NOSTRUMS

GOFF'S COUGH SYRUP' AND GOFF'S HERB BITTERS"

S B Goff & Sons Co of Camden N J were charged with shipping in interstate commerce a quantity of Goff's Cough Syrup and of Goff's Herb Bitters both of which were declared misbranded The 'Cough Syrup' was sold under the claim (made on the trade package) that it would prevent fatal membranous croup pneumonia and bronchitis, that it was a powerful restorative for the throat and lungs and was a remedy for pneumonia bronchitis, spitting of blood, whooping cough weak lungs' pleurisy and grippe The federal chemists reported that the stuff contained 8 per cent alcohol, about 55 per cent sugar, as well as some vegetable extractives and traces of iron, iodids antimony and alkaloids The government declared that the claims made for this preparation were false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity The Herb Bitters' were sold under the claim that Typhoid Fever, La Grippe, Malaria and Appendicitis cannot possibly exist in the system when Goff's Herb Bitters are taken regularly according to directions" The government chemist reported that the stuff was a water-alcohol solution of aloes, sugar and alkaline carbonate flavored with peppermint The claims quoted above were declared false and fraudulent and applied knowingly The company pleaded guilty and was fined $25 —[*Notice of Judgment No 4332*]

DANDER-OFF

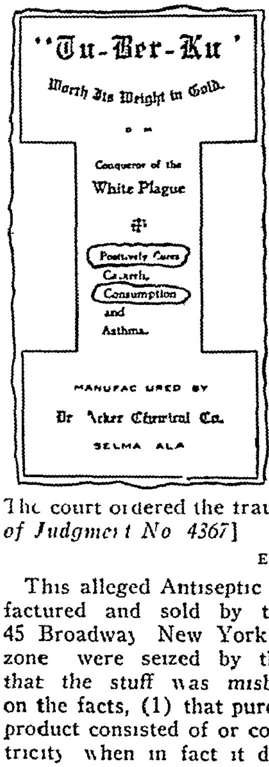
The C Hughel Co, Indianapolis, Ind, were charged with shipping in interstate commerce a quantity of Dander-Off which was misbranded The federal chemists reported that the preparation was an alkaline solution of borax and white arsenic colored with coal-tar dye It was claimed to be superior for all forms of dandruff and for all diseased and eczemic affections of the scalp and to be effective for restoring lifeless hair to good condition and causing the hair to grow more abundantly These and similar claims were declared by the government to be false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity The C Hughel Co pleaded guilty and was fined $50 and costs —[*Notice of Judgment No 4331*]

TU-BER-KU

The Dr A W Acker Chemical Co of Selma, Ala, shipped in interstate commerce 144 bottles of 'Tu-Ber-Ku" which the government declared were misbranded in violation of the Food and Drugs Act The preparation which admittedly contained 20 per cent alcohol was sold under such claims as

> Tuberculosis Can Be Cured Tu Ber Ku Triumphs
>
> It is a Blood Cleanser a Lung Builder a Flesh Maker a Health Restorer and an effective agency for fighting and curing Tuberculosis
>
> Has cured Consumption Catarrh Lagrippe Asthma and severe colds'

These and similar claims were declared by the government to be false, misleading and fraudulent The Dr Acker Chemical Company filed an answer to the libel claiming the product and the case was brought before the court and a jury After due deliberation the jury returned a verdict sustaining the government's charges The court ordered the fraudulent nostrum destroyed —[*Notice of Judgment No 4367*]


"Tu-Ber-Ku'
Worth Its Weight in Gold.
Conqueror of the
White Plague
Positively Cures
Catarrh,
Consumption
and
Asthma.
MANUFACTURED BY
Dr Acker Chemical Co.
SELMA ALA

ELECTROZONE

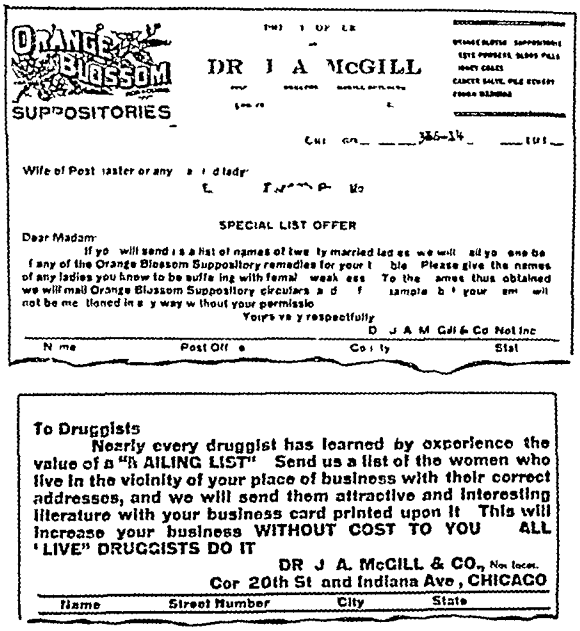
This alleged Antiseptic Germicide Disinfectant was manufactured and sold by the Chemical and Electrical Co, 45 Broadway New York Eighty-four bottles of Electrozone were seized by the government under the charge *that the stuff was misbranded* This charge was based on the facts, (1) that purchasers were led to believe that the product consisted of or contained ozone associated with electricity when in fact it did not contain ozone and was not associated with electricity, (2) in that the chemical formula indicated that the product was composed of certain chemicals of which in fact it was not so composed, (3) in that ozone was not formed together with nascent oxygen and peroxid of hydrogen when the hypochlorites were brought in contact with organic matter as was claimed on the label, (4) in that the stuff liberated no ozone, although the company claimed that when Electrozone was freely sprayed into an atmosphere containing carbonic acid gas, it neutralized this gas and filled the air with a fresh supply of oxygen Electrozone was recommended by its exploiters for piles, cholera infantum leukorrhea rheumatism, eczema, *sunburn*, diphtheria, 'falling hair," ear ache and various other conditio[illegible] These claims the government declared false and frad[illegible]ent and applied 'with a knowledge of their falsity' and had be[illegible] made *for the purpose of defrauding purchasers*' The

Chemical and Electrical Company appeared as claimant and having consented to the entry of a decree, with the understanding that it should apply only to certain of the therapeutic claims, the court declared that the stuff was "misbranded in so far as it relates to some of the therapeutic effects" made and declared the product condemned and forfeited and ordered that a judgment be entered against the claimant for the cost of the proceedings It was provided, however that after payment of the costs, the company might execute a bond of $500 and the Electrozone would be turned over to it on the condition that it should be relabeled under the supervision of the federal official —[*Notice of Judgment No 4355*]

ORANGE BLOSSOM FEMALE SUPPOSITORIES

John A McGill, Chicago, Illinois, has for years been selling a nostrum known as "Dr Jno A McGill Orange Blossom Female Suppositories" Some of the claims that have been made for this nostrum are

> 'A famous remedy for all female diseases'
>
> The famous Suppository is a Noble Remedy for the following diseases Inflammation, Congestion and Falling of the Womb, Anteversion, Retroversion and Prolapsus, Dropsy of the Womb Ulceration, Polypus Tumors Leucorrhoea, Profuse and Difficult Menstruation, Ovarian Tumors Fibroid Tumors, Inflammation and Congestion of the Ovaries, Cancers in their Earlier States '



ORANGE BLOSSOM SUPPOSITORIES

DR J A McGILL

Chicago ___ 3-6-14 ___ 191_

Wife of Postmaster or any married lady

SPECIAL LIST OFFER

Dear Madam

If you will send us a list of names of twenty married ladies we will mail you one box of any of the Orange Blossom Suppository remedies for your trouble Please give the names of any ladies you know to be suffering with female weakness To the names thus obtained we will mail Orange Blossom Suppository circulars and free sample but your name will not be mentioned in any way without your permission

Yours very respectfully

Dr J A McGill & Co Not Inc

Name Post Office County State

To Druggists

Nearly every druggist has learned by experience the value of a "MAILING LIST" Send us a list of the women who live in the vicinity of your place of business with their correct addresses, and we will send them attractive and interesting literature with your business card printed upon it This will increase your business WITHOUT COST TO YOU ALL 'LIVE" DRUGGISTS DO IT

DR J A. McGILL & CO., Not Incor.
Cor 20th St and Indiana Ave , CHICAGO

Name Street Number City State

Two methods used by McGill to obtain a sucker list Letters sent to the wives of village postmasters and letters sent to druggists asking for the names of married ladies who are suffering from "female weakness'

The government chemists reported that analysis of the 'Orange Blossom Female Suppositories" showed that they contained "free boric acid, aluminum salt, sulphate, potassium salt sodium salt starch and petrolatum [vaseline]" As such a mixture will not cure "Cancers in their Earlier States," "Falling of the Womb" or the various other conditions claimed by John A McGill, the government declared these statements to be false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity McGill pleaded guilty and was fined $50 and costs —[*Notice of Judgment No 4360*]

DR SIMPSON'S VEGETABLE COMPOUND

"Dr Simpson's Vegetable Compound was put on the market by the "Dr A B Simpson Co" of Richmond, Ind, which was merely a trade name under which Thomas C Davis and Eva J Cole did business In spite of this, the cartons of the nostrum bore the following statement

> The undersigned, citizens of Richmond take pleasure in saying that more acquainted with Dr A B Simpson and for the sake of suffering humanity we cheerfully recommend him and his treatment Wm H Schlater Clerk Circuit Court S S Strattan, Treasurer Wayne Co T W Bennett Mayor of Richmond Jos P Iliff Chief of Police Thos C Davis Agt U S Express Co P C Graff Agt Adams Express Co"

The preparation was sold as a specific for erysipelas, all diseases of the skin, inflammatory rheumatism scald head, salt rheum and tetter The chemists of the Department of Agriculture reported that the stuff was essentially an alcohol-water solution of potassium iodid with a small amount of vegetable extractive, in which podophyllum, licorice and gentian were indicated The therapeutic claims were declared false and fraudulent while, in addition, misbranding was charged because the amount of alcohol present was not truthfully stated and because further a solution of potassium iodid cannot properly be called a "Vegetable Compound' Eva J Cole pleaded guilty to a part of the indictment and was fined $25 and costs The indictment was *nolle prossed* as to the defendant Davis —[*Notice of Judgment No 4363*]

WELLER'S STONE ROOT AND GIN

This preparation was put on the market by W L Weller & Sons Louisville, Ky The stuff, which admittedly contained 37½ per cent of alcohol, was advertised as "An Excellent Preparation for Kidney, Bladder and All Urinary Troubles, Also an Efficient Relief for Nervous Debility and Dyspepsia As a Tonic It Has No Equal" These and similar claims were naturally declared by the federal authorities to be false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity W L Weller & Sons having admitted the facts and consented to a decree, the court ordered that the stuff should be relabeled under the supervision of the United States food and drug inspectors and restored to the company, after the costs of the proceedings had been paid and a bond in the sum of $100 executed —[*Notice of Judgment No 1297*]

Correspondence

Rural Obstetrics

To the Editor —In a discussion on this subject abstracted in The Journal Dec 9 1916 p 1785, two women physicians took occasion to belittle the ability of the rural practitioner of this branch of the practice of medicine

This is no new subject The 'country doctor' is looked down on professionally by many of his colleagues who happen to reside in larger communities

It is hard to see why this should be In the article referred to the statement is made that "these men are sent out from our medical colleges and schools with nothing but a smattering of knowledge of the mechanics of childbirth" So far as medical college teaching with its accompanying hospital service is concerned, it is to be remembered that the practitioners in rural communities did not learn their profession there That time has long passed We country doctors, as far as my knowledge extends are originally from the same schools as our city colleagues If one takes the trouble to look into the matter he (or she) will find that as large a proportion of these doctors come from first-class schools as the physicians living in larger cities

With respect to facilities for keeping up to date after graduation, of course the resident of the larger city has much greater opportunities He can more easily attend the lectures and clinics of specialists, and see large numbers of cases But it will be noticed by one who visits the postgraduate schools that their attendance is not made up of physicians living in the city in which the school may be located On the other hand these valuable institutions are attended principally by those who would be classified as "country doctors' many hundreds of whom have left lucrative and otherwise successful practices and traveled long distances, frequently half way across the continent, to obtain such advantages

Since we do not have medical libraries located near by, our private ones are well stocked, and the books are not for ornament—they are used The mail brings us in constant touch with the same information which is accessible to our city brothers (and sisters) Our journals are not thrown unopened in a pile behind the door or on a shelf to be finally discarded without being unwrapped They are used to keep us in touch with what is going on in the centers of teaching and experimentation

In the matter of personal experience after his graduation, the country doctor is in a position in which he must keep up with the profession He has not the specialists in every line or easily accessible large hospitals to which he may turn over his cases when they are more or less puzzling Most country practitioners are not so happily located, for instance, that they can call an ambulance and shift the responsibility of a septic obstetric patient to the shoulders of a large hospital, and so have their own mortality rates kept down

On the contrary, the man practicing in the country must bear his own burdens, and he is in a position to be personally blamed (or sometimes praised) for his results With this in mind, the practitioner who has the moral and physical backbone to practice away from the larger cities is always doing his best for his patients even to the end, and is always trying to extend his limitations

The only country doctors with whose personalities and results I am acquainted are western ones, and I am not ashamed to count myself one of them

The county in which I reside has an area of over 5,600 square miles, and a population of a little over 7,500 There are usually eight or nine physicians residing in the county The result is that we often attend obstetric patients at distances of 30 or 40 miles from our residences, thanks to the automobile, though many of our roads are in the mountains

Of course there are disadvantages for the patients and discomforts for the doctors in this sort of practice, but some one must do it We realize that under such circumstances the daily visit is impossible On the other hand, we know that such daily visits do little to prevent or limit infections If these occur, whether in city or in country, they are almost invariably caused at the time of labor The consequence is that if proper asepsis is carried out at the time of delivery, there will be little more mortality or morbidity than if the woman lived in a large city

Since we have been in the registration area, there have been in this county 1,140 full-term births, about 1,100 of them reported by physicians In this number there have been four deaths directly attributable to labor One of these deaths was due to puerperal sepsis one to pulmonary embolism and two to eclampsia Neither of the eclampsia patients was under the care of a physician until after the onset of serious convulsions A physician had not been engaged to attend them One of them was over 30 miles from a physician, and the other about 15 miles away

Careful examination of death certificates filed during the registration period does not show the deaths of other mothers from 'typhoid fever,' "acute tuberculosis," "malaria" or any of those conditions which are sometimes made use of, intentionally or otherwise, to cover deaths due to puerperal infection These mothers were followed up, through the death certificates, for a period of three months after labor, and none of them died during that time from any cause whatever

Of the physicians attending these 1,100 confinements five have practiced in this county for varying lengths of time during the registration period, while five have resided here during the whole time, so that to a greater or less extent the 1 100 labors were attended by ten different "country doctors '

Of course I have no means of comparing our local practitioners with those of other rural communities but I see no reason to believe that they are not representative country doctors, at least as regards this section of the United States

With such statistics at hand I certainly think I am justified in making protest against such belittling of the obstetric results of rural practitioners in general I cannot speak for or against those of the eastern country districts, but only so far as refers to the section in which I happen to reside

Finally, we do not take kindly to criticism from such sources as those from which the discussion referred to seems to have originated On looking up the pedigrees' of the ladies in the fourth edition of the American Medical Directory copyrighted in 1914 I find that one of the critics was not yet in practice, at least in the United States or Canada—less than three years ago The other critic seems, according to the same authority, to have graduated from a medical college located in a "city" of about 10 000 population At the time of publication of the directory of 1914, she was still located in the same center of learning

Maurice A Walker, M D, Dillon, Mont

"Another 'Contemptuous Verdict'"

To the Editor —In your issue of December 16 you refer to a certain, or rather, uncertain 'dealer in rugs" as having been called a swindler by the *Tribune* Why this better part of valor" in discreetly suppressing the details? The *Tribune* evidently had courage enough to expose a fraud and take a chance Full publicity of such cases is for the good and protection of the community and a further deterrent to evil In some countries the convicted party must publish the decision of the court in a number of papers Now, if it was a libel suit The Journal feared, it could have limited itself to a citation of the case from the records giving the name of plaintiff and defendant as it does in its medicolegal column No accusation could possibly lie on the publication of a finding of a court, and your readers would know, as they really have a right to know, who the dealer was and where we were to find his "large and commodious pitfall '

P H F

[Comment —Our correspondent submitted with this letter what he doubtless considered an appropriate caption "Editorial Discretion and 'Contemptuous Verdicts' ' The implication that The Journal hesitates to give facts for fear of incurring a libel suit is really humorous There was just one reason that the name and address of the 'dealer in rugs" was not given in the editorial in question it had nothing to do with the case The Journal's editorial was simply a comment on the principle involved in "contemptuous verdicts" That was all It was neither conceived nor written with the idea of protecting The Journal readers from Maine to California and from Oregon to Florida from the alleged "large and commodious pitfall" located in a retail establishment on Fifth Avenue, New York City As "P H F" lives in New York City, an investment of one cent in the New York *Tribune* for Dec 5, 1916 will give him full information about the case —Ed]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request

TESTAMENTARY CAPACITY

To the Editor —Please tell me what is the usual test given by alienists to persons claimed to be mentally unsound with reference to their capability to transact business and make their wills There is to come up in the near future the case of a man who made his will over four years ago in favor of his wife and then afterward of his daughter The man worked on a farm all his life He was of more than ordinary intelligence compared with the older farmers in the locality and accumulated a small fortune by hard labor and thrift He helped all the other children to own farms of their own After an illness lasting five weeks caused by overheating on a horseback ride, he died at the age of 78 years During this illness he was delirious at times, there was albumin in the urine, etc All the business men with whom I have talked regarding his soundness of mind state they had never discovered any mental unsoundness or a condition different from that of any other normal man with whom they had transacted business I will thank you for any information you may send me bearing on this case especially what points the contestants are likely to introduce as evidence in their attempt to break the will

R S D

Answer —The laws relating to what constitutes capacity to make a valid will vary so much in different states that there can be no uniform rule as to how the mental element of that capacity can be tested by an alienist It follows, therefore, that it is never the function of an alienist to pronounce on this capacity This is the duty of the court before which the validity of a will is contested The alienist will testify only as to the condition of mind of the testator In some countries proof of the slightest degree of mental alienation at the time of the execution of a testament will suffice to invalidate it At the other extreme we find the conservative laws on the subject which prevail where the English common law is taken as the basis of legislation Under the latter systems it is difficult to upset a will on the ground of mental incapacity

Were an alienist to permit himself to give an opinion as to the testamentary capacity of a testator he would have either to give a different opinion in different countries which would be to assume the right of interpreting law, or to give the same opinion in all countries, which would constitute an attempt on the part of the alienist to legislate In the one case he would be usurping the functions of the court, in the other he would be trespassing on the domain of the legislator Nevertheless, an expert testifying in such a case will usually be familiar with the local law on testamentary capacity He will therefore direct his attention more particularly to those elements of the mentality of the testator which, under the local law are relevant to the latter's testamentary capacity

What these would be in the particular case you set out we are unable to appreciate In general, however, the points of importance in a man of the age of 74 and in the condition which you have described would be his memory for recent events, his knowledge of the nature and extent of the property of which he was purporting to dispose and of his relations thereto, the extent to which persons who in the ordinary event, might be expected to benefit by his will, and especially his natural heirs and successors would be present to his mind in their proper atmosphere at the time he executed the document, and lastly his knowledge of the nature and consequences of the act which he was performing An expert may testify in such a case on the results of an examination actually made by himself or he may as an opinion witness enlighten the court by interpreting the effect of the evidence of other persons, or by answers to hypothetic questions We gather from your letter that the latter procedure is the one likely to be adopted in the case you cite

There is one point which is not expressly raised by our correspondent, but which should be borne in mind When there is evidence brought forward tending to show that the testator, though not of unsound mind to such a degree as to incapacitate him from making a will, was nevertheless not of entirely sound mind in the ordinary sense of the expression, this kind of evidence is often relied on and acted on by the court, not to invalidate the will on the ground of unsound mind but to supplement any other evidence there may be in support of an attempt to upset the will on the ground of undue influence

MOUTH WASH

To the Editor —In the *Journal of Infectious Diseases* 1906 3 793 there was an article by Dr A B Wadsworth now director of the Division of Laboratories and Research of the New York State Department of Health giving a detailed description of a mouth wash Please publish it in Queries and Minor Notes H D T

ANSWER —

		gm or c c		
Sodium chlorid		2		ʒ ss
Sodium bicarbonate			7	gr x
Water (dist)		62		℥ ii
Glycerin		31		℥ i
Alcohol		155		℥ v
Thymol				
Menthol	aa		07	gr i
Oil of wintergreen			18	gtt iii
Oil of cinnamon			12	gtt ii
Oil of eucalyptus			32	gtt v
Tr cudbear		6		ʒ iss
Tr rhatany		2		ʒ ss

Dissolve salts in water before adding alcohol For use add an equal part of water

RUPTURE OF THE ACHILLES TENDON

To the Editor —Please let me know what the prognosis is in a case of complete rupture of the Achilles tendon at about the junction of the tendon and the muscles Please do not publish my name B A R

ANSWER—The prognosis in complete rupture of the Achilles tendon is good, provided operation is performed and the tendon properly sutured If the rupture is a subcutaneous one and there are no contraindications, the operation should be done at once If the rupture is compound, the question of the time to operate will depend on the condition of the wound as to the presence or absence of infection If the wound is not infected, immediate operation should be done In the presence of severe infection, operation should be postponed until the infection has been cleared up

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS Chicago Jan 24 26 Sec Dr C St Clair Drake Capitol Bldg, Springfield

IOWA Des Moines Feb 6 8 Sec Dr G H Sumner Capitol Bldg, Des Moines

KANSAS Topeka Feb 13 Sec Dr H A Dykes Lebanon

NEW YORK New York City Albany Syracuse and Buffalo Jan 29 Feb 2 Chief Examinations Division H H Horner University of the State of New York Albany N Y

VERMONT Montpelier Feb 13 Sec Dr W Scott Nay Underhill

Mississippi October Report

Dr J D Gilleylen, secretary of the Mississippi State Board of Health reports the written examination, held at Jackson, Oct 24-25 1916 The total number of subjects examined in was 8 total number of questions asked, 64, percentage required to pass, 75 The total number of candidates examined was 27 of whom 19 passed and 8 failed Eight candidates were licensed through reciprocity including one osteopath The following colleges were represented

College	PASSED	Year Grad	Per Cent
Birmingham Medical College		(1915)	81 2
Medical College of Alabama		(1897)	75
Atlanta College of Phys and Surgs		(1908)	82 7
Atlanta Medical College		(1916)	75
Chicago College of Medicine and Surgery		(1916)	75 2
University of Louisville		(1916)	81
Tulane University of Louisiana	(1908) 81 7	(1916) 82	82 7
University of Louisiana		(1882)	84 2
University of Pennsylvania	(1913) 83	(1916)	81 6
University of Tennessee (1916) 75 75 2	75 6 80 5	82 6 83 5	84 7
	FAILED		
Coll of Phys and Surgs Little Rock		(1910)	42 2
Loyola University		(1916)	71 1
Louisville Medical College		(1907)	67 5
Mississippi Medical College		(1911)	25 1
Meharry Medical College	(1913) 55 3	(1916) 60 5	70
University of Tennessee		(1916)	61 5

College	LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Atlanta College of Physicians and Surgeons		(1913)	Georgia
National University of Arts and Sciences		(1916)	Missouri
College of Physicians and Surgeons Memphis		(1908)	Tennessee
Memphis Hospital Medical College	(1902)	(1903)	Texas
		(1913)	Tennessee
University of Tennessee		(1913)	Tennessee

Oklahoma October Report

Dr Ralph V Smith, secretary of the Oklahoma State Board of Medical Examiners, reports the oral and written examination held at Oklahoma City, Oct. 10-11, 1916 The total number of subjects examined in was 11, total number of questions asked, 100, percentage required to pass, 70 The total number of candidates examined was 19, of whom 16 passed and 3 failed, including 2 osteopaths Sixteen candidates were licensed through reciprocity including 1 osteopath One candidate was licensed through reregistration The following colleges were represented

College	PASSED	Year Grad	Per Cent
Birmingham Medical College		(1913)	82
Columbian University		(1900)	80
Atlanta Medical College		(1915)	71
Chicago College of Medicine and Surgery		(1916)	89
College of Physicians and Surgeons Chicago		(1912)	87
Northwestern University	(1912) 85	(1914)	81
Tulane University of Louisiana		(1914)	80
American Medical College		(1908)	77
University of Oklahoma		(1916)	81
University of Pennsylvania		(1907)	84
University of Pittsburgh		(1915)	83
Vanderbilt University		(1915) 76	83
Baylor University		(1916)	75
Fort Worth School of Medicine		(1916)	79
	FAILED		
College of Physicians and Surgeons Kansas City Kan		(1901)	*

* No grade given

College	LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas		(1904)	Arkansas
Hering Medical College		(1910)	Georgia
Hospital College of Medicine	(1895) Arkansas	(1907)	Kentucky
University of Louisville	(1889)	(1909)	Kentucky
Kansas City Hahnemann Medical College		(1904)	Kansas
St Louis College of Physicians and Surgeons		(1895)	Arkansas

Washington University	(1913)	Missouri
University of Buffalo	(1901)	Texas
Eclectic Medical Institute	(1904)	Arkansas
University of Pennsylvania	(1908)	W Virginia
Chattanooga Medical College	(1902)	Tennessee
Meharry Medical College	(1915)	Tennessee
Vanderbilt University	(1910)	Mississippi

Georgia October Report

Dr C T Nolan, secretary of the State Board of Medical Examiners of Georgia, reports the written examination held at Atlanta, Oct 10, 1916 The total number of subjects examined in was 10, total number of questions asked, 100, percentage required to pass 80 The total number of candidates examined was 12, of whom 7 passed and 5 failed Eight candidates were licensed through reciprocity The following colleges were represented

College	PASSED	Year Grad	Per Cent
Atlanta Medical College		(1916)	86 6
University of Maryland		(1916)	94 4
Harvard University	(1915) 95 7	(1916)	89 5
Meharry Medical College		(1916) 83 1	83 4
Vanderbilt University		(1916)	92 7
	FAILED		
Loyola University		(1916)	67 9
Meharry Medical College	(1908) 75 9 (1915) 71	(1916)	76 4, 77 9

College	LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Georgetown University		(1914)	Maine
Tulane University of Louisiana		(1916)	Louisiana
Johns Hopkins University		(1910)	Virginia
University of Maryland		(1911)	Maryland
Leonard Medical School		(1911)	N Carolina
Jefferson Medical College of Philadelphia		(1916)	N Carolina
Meharry Medical College		(1916)	Tennessee
Medical College of Virginia		(1909)	N Carolina

New Jersey October Report

Dr Alexander MacAlister, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, Oct 17-18, 1916 The total number of subjects examined in was 9, total number of questions asked, 90, percentage required to pass, 75 The total number of candidates examined was 17, of whom 12 passed and 5 failed Thirty-four candidates were licensed through indorsement The following colleges were represented

College	PASSED	Year Grad	Per Cent
Georgetown University		(1914)	80
Howard University		(1915)	75
Johns Hopkins University		(1915)	79 7
Harvard University		(1916)	83
Albany Medical College		(1914)	75
New York Homeo Med Coll and Flower Hosp		(1915) 75 1	81
Jefferson Med College of Philadelphia	(1902) 75	(1916)	84 8
Medico Chirurgical College of Philadelphia		(1916)	78
University of Vermont		(1915)	82 8
University of Virginia		(1915)	79 4
	FAILED		
Howard University		(1914)	71 7
University Medical College of Kansas City		(1892)	60 4
University of the City of New York		(1880)	64 6
University of Palermo		(1905)	53 6
University of St Joseph Beirut		(1894)	72 1

College	LICENSED THROUGH INDORSEMENT FROM JULY 8 TO NOV 8 1916	Year Grad	Through Indorsement
University of Louisville		(1912)	Kentucky
Baltimore University		(1901)	Penna
University of Maryland		(1916)	Maine
Tufts College		(1912)	Mass
Dartmouth Medical School		(1908)	Maine
Albany Medical College		(1915)	New York
Bellevue Hospital Medical College		(1898)	New York
Columbia University, Coll of Phys and Surgs	(1896) (1906) (1913)	(1915)	New York
Cornell University		(1915)	Maine
Eclectic Medical College of City of New York		(1910)	New York
Long Island College Hospital	(1909) (1913)	(1915)	New York
New York Homeo Med Coll and Flower Hosp	(1909) (1913) (1914)	(1916)	New York
University and Bellevue Hosp Med Coll	(1913) (1914)	(1915 3)	New York
University of Buffalo		(1914)	New York
Hahnemann Med Coll and Hosp of Philadelphia		(1914)	Delaware
Medico Chirurgical Coll of Philadelphia		(1915)	New York
University of Pennsylvania		(1902)	Penna
University of Vermont	(1902) (1906)	(1914)	Vermont
University of Virginia		(1915)	Virginia
University of Naples		(1892)	Alabama

Social Medicine, Medical Economics and Miscellany

SPIROCHAETA PALLIDA OR TREPONEMA PALLIDUM?

In Reply to Dr Stiles

WILLIAM ALLEN PUSEY, A M, M D
CHICAGO

In reply to Dr Stiles argument, I would make two points

First, the genus *Treponema,* and specifically the organism of syphilis, are not so sharply distinguished from the *Spirochaeta* that the genus *Treponema* can be held to be finally established without any reasonable doubt as to the validity of the genus, and, this being the case, the argument for the name *Treponema pallidum* is based on uncertain ground when it rests on reasons of classification alone

Second, an overwhelming preponderance of authoritative usage has fixed the name *Spirochaeta pallida* in scientific literature as the name for the organism of syphilis Dr Stiles assumes that the distinctions between the *Spirochaetae* and the *Treponemata* are clear and definite and that the establishment of the genus *Treponema* as distinguished from the *Spirochaeta* is final The whole classification argument is based on this assumption

I do not presume to offer my opinion on a question of zoological nomenclature against that of Dr Stiles, but I may without presumption point out that there is a difference of opinion among microbiologists as to the classification of the organism of syphilis Its place is not definitely and with unanimity settled outside the genus *Spirochaeta* Dr Stiles himself very clearly points out that there are, as regards this point, two groups among zoologists, the 'lumpers' and the "splitters" The very fact of the existence of the two groups is the best evidence of the differences of opinion as to this matter of classification

It is not difficult for me, without being conversant with the literature of protozoology, to find eminent authorities who differ from the International Commission on Zoological Nomenclature about the name of the organism of syphilis One of these is no less a person than Metchnikoff, Chef de Service de Microbiologie de l'Institut Pasteur, not a physician who, in his exhaustive article on the microbiology of syphilis in the "British System of Syphilis," says, 'I consider that the time is still premature to make any classification of spirillar micro-organisms"

Again, Dr Novy, professor of bacteriology in the University of Michigan, who has perhaps done more work on the spirochetes and allied forms than any other American expert, indicates in a communication to me, which I quoted in my previous article that in his opinion the separation of the organism of syphilis from the spirochetes is not established beyond question when he says "The term *Spirochaeta* has come into such general use that it hardly seems worth while to make a change unless the difference is absolutely conclusive"

Further, Dr Calkins, professor of protozoology in Columbia University, not a physician in commenting in his Protozoology' on the uncertainties of classification and the difficulties in determining the characteristics of these organisms, has this to say

> *Spirochaeta* thus characterized as an organism with flexible spirally twisted body with a laterally placed undulating membrane would seem to be definitely distinguished but unfortunately, the problem is not so simple for we have to do with exquisitely minute things which offer extreme difficulties in technical treatment Statements as to structure and activities of certain species even though made by equally eminent authorities, are frequently directly contradictory
>
> Observations are too incomplete and too often contradictory to justify a safe grouping at the present time and in making groups of spirochetes a given species will be placed in one division or another according to the discretion of the present author in following one or another authority With this preliminary caution the following table of the different kinds of spirochetes classified according to the presence or absence of so-called flagella and undulating membrane is based

He then classifies these organisms as follows

A Type genus *Spirocheta* With undulating membrane, without flagella

B Genus *Treponema* Without undulating membrane, with flagella

C Undetermined forms referred to genera *Spirocheta* and *Spirillum*

A great difference of opinion as to the classification of these organisms is seen when one compares the species in genus *Treponema* as given by Calkins in his "Protozoology" with the species in the same genus as given by Fantham in The Animal Parasites of Man" by Fantham Stephens and Theobald Calkins includes under the genus *Treponema* *Tr pallidum* *Tr pertenue* *Tr anserinum*, *Tr gallinarum* *Tr theileri* *Tr muris* Fantham gives only *Tr pallidum* and *Tr pertenue* but indicates that there are other members of the genus The interesting fact comparing the two classifications, is that three species of the six which Calkins classifies as *Treponemata* Fantham classifies and describes as *Spirochaetae* The *Treponema gallinarum* of Calkins is the *Spirochaeta gallinarum* of Fantham The *Treponema anserinum* of Calkins is the *Spirochaeta anserinum* of Fantham The *Treponema muris* of Calkins is the *Spirochaeta muris* of Fantham

Bosanquet in his work Spirochetes" has the following to say concerning classification

> It has already been pointed out that the position of the spirochaetes in nature—whether they are to be regarded as protozoa or bacteria—is doubtful Their relations as a group are almost equally undecided
>
> Certain peculiarities observed in the *Sp pallida* led Schaudinn to put it in a distinct genus called *Treponema* The characteristics of this genus were the round shape of the body in section as opposed to the flattened shape of the spirochaetes the fixity of the curls exhibited by the organism the absence of an undulating membrane and the presence of terminal filaments
>
> Examination of the qualities on which this distinction is founded does not tend to strengthen a belief in its validity The round shape of the organism in section may be admitted but the ribbon like shape of the other small spirochaetes is not very clearly established The existence of an undulating membrane is doubtful even in the larger spirochaetes and still more problematical in the smaller group Terminal filaments may be found in other species besides *Sp pallida* and finally the even curls presented by this spirochaete may at times be absent as is admitted even by Schaudinn himself Norris Pappenheimer and Flournoy point out that the *Sp obermeieri* exhibits all the characteristics assigned to a treponema

The uncertainty of the taxonomic place of these organisms is quickly seen whenever a comparison is made of the views of different authors concerning them Schaudinn, as already shown, made as a distinguishing characteristic which separated the spirochetes from the treponemes, the presence of an undulating membrane in the spirochete, and the absence of an undulating membrane in the treponeme Yet Fantham says, in reference to this point, 'In some forms there is a membrane or crista present, which in the past was compared with the undulating membrane of a trypanosome, but the membrane of a spirochaete does not undulate" There is even uncertainty about the very type species of the genus *Spirochaeta* the *Spirochaeta plicatilis* of Ehrenberg discovered in 1838, for Zuelzer, as quoted by Fantham, says that the *Spirochaeta plicatilis* does not possess a membrane Again, Blanchard, according to Fantham, finds a slight membrane in the *Treponema pertenue* Here, then, we have this situation, Schaudinn establishes an undulating membrane as a critical characteristic of the *Spirochaeta* Fantham says that the membrane does not undulate According to Zuelzer's observation, the very type species of the *Spirochaeta* does not possess a membrane, and Blanchard finds a membrane in one of the species of the genus *Treponema* which has been separated from the genus *Spirochaeta* partly on the ground that its members do not possess a membrane

I think these few quotations will indicate the difficulties and the lack of unanimity in the taxonomy of this subject, and the weakness that must attach to any argument which would insist on naming the organism of syphilis on taxonomic grounds alone But even if there were not this utter uncertainty among authors now as to the classification of these organisms, experience indicates that increase in knowledge might entirely upset the classification in a short time As knowledge increases, "splitters" are quite as likely to be forced to 'lump" as "lumpers" are to "split" There is no inherent scientific virtue pertaining to either attitude It is not hard to cite experiences to illustrate this fact in the domain of microbiology Twenty-five years ago so good an authority as Prof William H Welch gave us the *Staphylococcus epidermidis-albus* as a species of staphylococcus It has long since been lumped with the *staphylococcus albus* A good recent illustration of the uncertainty of distinctions between micro organisms is the work of E C Rosenow who has shown by his researches that many cocci thought to be distinct and pathogenic varieties are probably one species of streptococcus presenting varying characteristics under different conditions There is even some uncertainty about the morphology of the organism of syphilis According to Bosanquet, Bertarelli and Volpino, Schereschewsky, Sobernheim and Tamasoli describe intermediate or irregular forms of *Spirochaeta pallida* Bosanquet says, *Spirochaeta* pallida is noted for the regularity of its curls and is indeed identified by this means, yet Schaudinn observed that almost straight forms might occur, " He adds, 'These observations are sufficient to indicate that considerable doubt must be felt as to the constancy of form among the small spirochaetes, "

In the face of such differences as shown above, and the confessedly meager and uncertain knowledge of the facts on which the classification of the spirochetes and allied organisms must be made, I believe the outsider may plead even against the testimony of so authoritative a body as the International Commission on Zoological Nomenclature, that the genus *Treponema* is not so firmly fixed that, on the grounds of classification alone the name Treponema can be insisted on for any given species in the genus regardless of other considerations

There are one or two collateral points in Dr Stiles article concerning which I should like to say a word His involving allegiance to the findings of the Commission on Nomenclature as a matter of ethics seems to me not apposite, and, if I understand the application which he makes of it, it must, I believe have been due to oversight Ethics scientific ethics included, concern matters of right and wrong and I am sure Dr Stiles does not believe that any scientific commission however important, is so august that failure to accept its findings is wrong That would be medieval worship of authority

He also refers to the confusion which is liable to occur from the use of *Spirochaeta* without qualification instead of the specific name, *Spirochaeta pallida* I believe there is little danger of confusion as to the meaning in an article on syphilis if the unqualified word spirochete should be used after *Spirochaeta pallida* had first been used And I certainly se no reason why there should be more confusion from the use of *Spirochaeta* alone than that of *Treponema* alone There are already several treponemes, and the unqualified word *Treponema* is certainly not less likely to lead to confusion than the more familiar word *Spirochaeta* without qualification

A word as to Dr Stiles' remarks regarding the backwardness of physicians and their failure to appreciate the difficulties of this subject as pure zoologists do So far as the specific instance which we are now considering is concerned, I do not think that it can be maintained that the pure zoologists stand as a unanimous group while the physician zoologists are chiefly responsible for the other group In looking up the position of authorities on this subject I took the first that came to hand They were Novy, Metchnikoff, Calkins, Fantham and Bosanquet Two of these five are not physicians (Calkins and Metchnikoff), and the other three, while physicians, are specialists in this field who have done original work of the highest class and I have no doubt could claim equal appreciation with the purest systematists of all of the difficulties of classification and nomenclature The physician zoologists are not responsible for the confusion, pure zoologists are equally uncertain The confusion lies in the uncertainty of the criteria on which the classification rest

But regardless of classification, my argument in favor of *Spirochaeta pallida* is based on the fact that *Spirochaeta pallida* is established by authoratative and greatly preponderating usage The argument would be just as strong for *Treponema pallidum* if usage were in its favor Dr Stiles indicates that there is some doubt as to what is meant by best usage as regards a word or linguistic form, and says, "Best usage from the point of view of the splitters is that usage which comes closest to expressing a natural classification of the organism'—in other words comes closest to expressing their views I venture to insist that such is not the meaning of the words "best usage or "good usage" as they are used in this connection, but, on the contrary, that they refer solely to precedent—the use by recognized authorities of any particular word in question Good use is a technical phrase which as such will be found in books dealing with linguistic forms It is an accepted principle that the criterion of the standing of words is such usage—not what you, or I, or any present body of men think should be the word to describe a thing, but what the word to describe it is, as shown by good precedent

As Barrett Wendell says in his work on English composition

> In English as in every other language the final test of what words we may use is inevitably the usage of those who speak and write it the test of what words we should use is the usage of those who speak and write it best in other words good use
>
> Common consent general practice is what makes the alphabet signify anything In this fact lies the hopelessness of the efforts now and then made by dogmatists not possessed of despotic authority to reform spelling [With equal truth we might substitute nomenclature here for spelling —W A P] The question in a given instance is not what ought to be the case but what is And to the state of things which enables us to decide in spelling as in other fashions what the case is at any given moment we give for convenience sake, the name Good Use.
>
> Dictionaries and grammars [or commissions on nomenclature —W A P] to be sure may codify what exists at any given moment Regarded as codes they are invaluable but at best they are codes of common law, not legislative enactments The only sanction behind them is that of practice of usage

Thus, usage, in the technical sense of good precedent establishes proper linguistic forms, and I would point out again that usage both in quantity and quality is overwhelmingly in favor of *Spirochaeta pallida* That point was brought out in my previous article Let me repeat here a few of the names of individuals to illustrate the quality of usage in favor of *Spirochaeta pallida*

Metchnikoff, who discovered the inoculability of syphilis in apes, and by this discovery made possible the present revolution in our knowledge of syphilis used *Spirochaeta pallida* Hoffmann, who was the codiscoverer of *Spirochaeta pallida* with Schaudinn, and whose name was never separated from Schaudinn's in giving credit for the discovery until after Schaudinn's death, uses *Spirochaeta pallida* Neisser, who with Wassermann and Bruck developed the serum complement reaction for syphilis and until his recent death was our greatest authority on clinical and experimental syphilis, used *Spirochaeta pallida* Uhlenhuth, whose researches in the chemotherapy of syphilis opened the way for Ehrlich and whose work Atlas der Experimental Kaninchen Syphilis' written in collaboration with Mulzer, is the authoritative book on experimental syphilis uses *Spirochaeta pallida* Ehrlich used *Spirochaeta pallida* Noguchi, the only other man whose work in syphilis entitles him to mention in the class with these men uses *Spirochaeta pallida* as a rule, but *Treponema pallidum* occasionally

These men of course are not a miscellaneous collection They, with Schaudinn who died within a year after the discovery of the *Spirochaeta pallida* are the men whose discoveries have made modern syphilis, and they and their followers have written *Spirochaeta pallida* into the literature of syphilis in such a way that it cannot be erased In the attempt to substitute *Treponema pallidum* the most that can be gained by the advocates of it is the use of both names for the organism Splitters and purists may use *Treponema pallidum* It is not beyond the possibilities that in time the taxonomic grounds for its use may be swept from under them and that they may be forced back to the use of *Spirochaeta pallida* But whatever they may do the universal use of *Spirochaeta pallida* in German, its overwhelmingly preponderant use in English, and its preponderant use in French mean that *Spirochaeta pallida* will continue to be the generally used name for the organism of syphilis For the sake of unanimity and clearness the use of two names for the organism should be avoided if possible Certainly this should not be brought about simply in the interest of a system of classification, which as respects the organism in question here, is based on characteristics whose finality is not certain

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Medicolegal

Liability of Father for Services for Daughter Away from Home

(Wallace vs Cox et al (Tenn) 188 S W R 611)

The Supreme Court of Tennessee affirms a judgment holding that the plaintiff was entitled to recover from defendant Cox as on an implied contract for a surgical operation and attendance on a 17 year old daughter of said defendant This daughter and an older one were in a nearby city earning their own living, when this one became ill and the plaintiff was called in by the matron of the Y W C A building where they were boarding After prescribing for the daughter for a time, the plaintiff decided that an operation was necessary to remove an ovarian tumor He had stated that the operation would be a slight one, and, when the elder daughter telephoned to their father that an operation was advised, and he inquired whether an incision would have to be made, she said that it would not, that the operation would be a slight one, and he replied "Well, then if it must be done, it must be done ' The elder daughter testified that the plaintiff did not ask her to telephone to her father, and that she did not inform him that she had done so for several days after the operation The plaintiff testified that in performing the services he looked to the father for compensation The father testified that he failed to hear the name of the surgeon over the telephone, that had he been informed that an incision was required, he would have gone to the city and had the operation performed by another surgeon with whom he was personally acquainted, and that he was not asked to and did not promise to pay for the operation The operation was successful Bills were sent to the father, who paid no attention to them and suit was brought The circuit judge, sitting without the intervention of a jury, held that the father was not liable The court of civil appeals divided on the question, the majority holding that the plaintiff was entitled to recover as on an implied contract, which latter is the judgment here affirmed The supreme court says that the liability of a father for necessary medical attention given a child who has not remained as a member of his immediate family is a question on which the authorities are at least in apparent conflict Cases fairly supporting either of the opposing rulings of the lower courts may be found, but a number of those holding with the judgment of the circuit court take color from English cases which proceed on the principle that a father is under only a moral obligation to support his child The obligation of the parent to support his child at common law was not well defined but in Tennessee it has been held more nearly in accord with the natural sense of justice that the obligation is not merely moral, but legal and enforceable as a legal common-law duty It therefore follows that if the parent neglect that duty any other person who supplies such necessary attention to the child is deemed ordinarily, to have conferred a benefit on the delinquent parent, for which the law raises an implied promise to pay on the part of the parent In this case the father did not successfully prove any emancipation of the daughter conferring on her the right to her earnings and terminating his duty to support her Her effort to earn her own support was praiseworthy and tended to lift a burden that rested on the father, and the courts should be slow to permit the fact to become a shield for his protection at least where a full emancipation was not shown The restoration of the daughter

He then classifies these organisms as follows

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In the face of such differences as shown above, and the confessedly meager and uncertain knowledge of the facts on which the classification of the spirochetes and allied organisms must be made, I believe the outsider may plead even against the testimony of so authoritative a body as the International Commission on Zoological Nomenclature, that the genus *Treponema* is not so firmly fixed that, on the grounds of classification alone the name Treponema can be insisted on for any given species in the genus regardless of other considerations

There are one or two collateral points in Dr Stiles' article concerning which I should like to say a word His invoking allegiance to the findings of the Commission on Nomenclature as a matter of ethics seems to me not apposite, and, if I understand the application which he makes of it, it must, I believe, have been due to oversight Ethics scientific ethics included, concern matters of right and wrong, and I am sure Dr Stiles does not believe that any scientific commission however important, is so august that failure to accept its findings is wrong That would be medieval worship of authority

He also refers to the confusion which is liable to occur from the use of *Spirochaeta* without qualification instead of the specific name, *Spirochaeta pallida* I believe there is little danger of confusion as to the meaning in an article on syphilis if the unqualified word spirochete should be used after *Spirochaeta pallida* had first been used And I certainly see no reason why there should be more confusion from the use of *Spirochaeta* alone than that of *Treponema* alone There are already several treponemes, and the unqualified word *Treponema* is certainly not less likely to lead to confusion than the more familiar word *Spirochaeta* without qualification

A word as to Dr Stiles' remarks regarding the backwardness of physicians and their failure to appreciate the difficulties of this subject as pure zoologists do So far as the specific instance which we are now considering is concerned I do not think that it can be maintained that the pure zoologists stand as a unanimous group while the physician zoologists are chiefly responsible for the other group In looking up the position of authorities on this subject I took the first that came to hand They were Novy, Metchnikoff, Calkins Fantham, and Bosanquet Two of these five are not physicians (Calkins and Metchnikoff) and the other three while physicians are specialists in this field who have done original work of the highest class and I have no doubt could claim equal appreciation with the purest systematists of all of the difficulties of classification and nomenclature The physician zoologists are not responsible for the confusion, pure zoologists are equally uncertain The confusion lies in the uncertainty of the criteria on which the classification rest

But regardless of classification, my argument in favor of *Spirochaeta pallida* is based on the fact that *Spirochaeta pallida* is established by authoratative and greatly preponderating usage The argument would be just as strong for *Treponema pallidum* if usage were in its favor Dr Stiles indicates that there is some doubt as to what is meant by best usage as regards a word or linguistic form, and says 'Best usage from the point of view of the splitters is that usage which comes closest to expressing a natural classification of the organism'—in other words, comes closest to expressing their views I venture to insist that such is not the meaning of the words "best usage' or "good usage' as they are used in this connection, but, on the contrary, that they refer solely to precedent—the use by recognized authorities of any particular word in question Good use is a technical phrase which, as such, will be found in books dealing with linguistic forms It is an accepted principle that the criterion of the standing of words is such usage—not what you, or I, or any present body of men think should be the word to describe a thing, but what the word to describe it is, as shown by good precedent.

As Barrett Wendell says in his work on English composition

> In English as in every other language the final test of what words we may use is inevitably the usage *of those who speak and write* it the test of what words we should use is the usage of those who speak and write it best in other words good use
>
> Common consent general practice is what makes the alphabet *signify anything* In this fact lies the hopelessness of the efforts now and then made by dogmatists not possessed of despotic authority to reform spelling [With equal truth we might substitute nomenclature here for spelling —W A P] The question in a given instance is not what ought to be the case but what is And to the state of things which enables us to decide in spelling as in other fashions what the case is at any given moment we give for convenience sake the name Good Use
>
> Dictionaries and grammars [or commissions on nomenclature —W A P] to be sure, may codify what exists at any given moment Regarded as codes they are invaluable but at best they are codes of common law not legislative enactments The only sanction behind them is that of practice, of usage

Thus, usage, in the technical sense of good precedent establishes proper linguistic forms, and I would point out again that usage, both in quantity and quality is overwhelmingly in favor of *Spirochaeta pallida* That point was brought out in my previous article Let me repeat here a few of the names of individuals to illustrate the quality of usage in favor of *Spirochaeta pallida*

Metchnikoff, who discovered the inoculability of syphilis in apes and by this discovery made possible the present revolution in our knowledge of syphilis used *Spirochaeta pallida* Hoffmann who was the codiscoverer of *Spirochaeta pallida* with Schaudinn, and whose name was never separated from Schaudinn's in giving credit for the discovery until after Schaudinn s death, uses *Spirochaeta pallida* Neisser, who with Wassermann and Bruck developed the serum compliment reaction for syphilis and until his recent death was our greatest authority on clinical and experimental syphilis used *Spirochaeta pallida* Uhlenhuth, whose researches in the chemotherapy of syphilis opened the way for Ehrlich and whose work "Atlas der Experimental Kaninchen Syphilis,' written in collaboration with Mulzer, is the authoritative book on experimental syphilis, uses *Spirochaeta pallida* Ehrlich used *Spirochaeta pallida* Noguchi the only other man whose work in syphilis entitles him to mention in the class with these men uses *Spirochaeta pallida* as a rule, but *Treponema pallidum* occasionally

These men of course are not a miscellaneous collection They, with Schaudinn who died within a year after the discovery of the *Spirochaeta pallida* are the men whose discoveries have made modern syphilis, and they and their followers have written *Spirochaeta pallida* into the literature of syphilis in such a way that it cannot be erased In the attempt to substitute *Treponema pallidum* the most that can be gained by the advocates of it is the use of both names for the organism Splitters and purists may use *Treponema pallidum* It is not beyond the possibilities that in time the taxonomic grounds for its use may be swept from under them and that they may be forced back to the use of *Spirochaeta pallida* But whatever they may do the universal use of *Spirochaeta pallida* in German, its overwhelmingly preponderant use in English, and its preponderant use in French mean that *Spirochaeta pallida* will continue to be the generally used name for the organism of syphilis For the sake of unanimity and clearness, the use of two names for the organism should be avoided if possible Certainly this should not be brought about simply in the interest of a system of classification, which as respects the organism in question here, is based on characteristics whose finality is not certain

Medicolegal

Liability of Father for Services for Daughter Away from Home

(Wallace vs Cox et al (Tenn) 188 S W R 611)

The Supreme Court of Tennessee affirms a judgment holding that the plaintiff was entitled to recover from defendant Cox as on an implied contract for a surgical operation and attendance on a 17 year old daughter of said defendant This daughter and an older one were in a nearby city earning their own living, when this one became ill and the plaintiff was called in by the matron of the Y W C A building where they were boarding After prescribing for the daughter for a time the plaintiff decided that an operation was necessary to remove an ovarian tumor He had stated that the operation would be a slight one, and, when the elder daughter telephoned to their father that an operation was advised, and he inquired whether an incision would have to be made, she said that it would not, that the operation would be a slight one and he replied 'Well, then, if it must be done, it must be done ' The elder daughter testified that the plaintiff did not ask her to telephone to her father, and that she did not inform him that she had done so for several days after the operation The plaintiff testified that in performing the services, he looked to the father for compensation The father testified that he failed to hear the name of the surgeon over the telephone, that had he been informed that an incision was required, he would have gone to the city and had the operation performed by another surgeon, with whom he was personally acquainted, and that he was not asked to and did not promise to pay for the operation The operation was successful Bills were sent to the father, who paid no attention to them and suit was brought The circuit judge sitting without the intervention of a jury, held that the father was not liable The court of civil appeals divided on the question, the majority holding that the plaintiff was entitled to recover as on an implied contract which latter is the judgment here affirmed The supreme court says that the liability of a father for necessary medical attention given a child who has not remained as a member of his immediate family is a question on which the authorities are at least in apparent conflict Cases fairly supporting either of the opposing rulings of the lower courts may be found, but a number of those holding with the judgment of the circuit court take color from English cases which proceed on the principle that a father is under only a moral obligation to support his child The obligation of the parent to support his child at common law was not well defined, but in Tennessee it has been held more nearly in accord with the natural sense of justice that the obligation is not merely moral, but legal, and enforceable as a legal common-law duty It therefore follows that if the parent neglect that duty, any other person who supplies such necessary attention to the child is deemed ordinarily, to have conferred a benefit on the delinquent parent, for which the law raises an implied promise to pay on the part of the parent In this case the father did not successfully prove any emancipation of the daughter conferring on her the right to her earnings and terminating his duty to support her Her effort to earn her own support was praiseworthy and tended to lift a burden that rested on the father, and the courts should be slow to permit the fact to become a shield for his protection, at least where a full emancipation was not shown The restoration of the daughter in consequence of the surgical operation was itself beneficial to the father, since it gave the daughter ability to relieve him further, unless it be assumed to his and the law's discredit that he no longer owed the duty to receive and provide for her as an invalid in his home The modern tendency among women and girls to earn a living frequently gives occasion for absence from home, and that fact should not readily be held to deprive them of a claim to support in time of need Slight circumstances, if necessary, will be allowed to control the decision

Breach of Contract for Removal of Gallstones

(Schuster v Sutherland (Wash) 158 Pac R 730)

The Supreme Court of Washington affirms a judgment in favor of the plaintiff, who sued the defendant for alleged breach of contract for the removal of gallstones, etc The court says that it was alleged in substance in the complaint, that, December 4 the plaintiff and the defendant entered into a verbal contract whereby the defendant, a physician and surgeon agreed to perform a surgical operation on the plaintiff and contracted, warranted and promised to remove all gallstones then in the body of the plaintiff to cure him of the ailments from which he was then suffering, and to remove from his abdomen all causes of disease, of whatsoever kind or nature, possible to be removed by means of such a surgical operation, that the operation was performed the next day, that the defendant failed to remove all or any gallstones from the plaintiff's body by the operation, though a certain gallstone was present, and that the plaintiff was compelled to employ another surgeon, who performed an operation, January 30, and removed a gallstone which had not been found by the defendant Another statement by the court is that, February 7 the second surgeon found and removed a calculus from the duct known as the ampulla of Vater, and after this operation the plaintiff improved immediately, and progressed to a final recovery without a recurrence of his previous symptoms Now, as the court reads the record there was evidence tending to show that the contract was to remove all gallstones in the plaintiff's body in whatsoever place situated and all causes of disease, be the same what they might and evidence to the effect that a gallstone of the size of the one removed in the second operation could not have formed in the body within the time elapsing between the two operations If this were the contract, and the evidence concerning the time required for the formation of the stone be believed, clearly the question was for the jury, conceding that the defendant made an exploration of the gallbladder and the ducts leading therefrom If however, the court could say as matter of law that rational beings would not enter into the contract contended for by the plaintiff, and that in law the contract was one to explore the gallducts and the ducts leading therefrom and remove such as would be found, still the court thinks the question whether it was actually performed was for the jury The court thinks there was much evidence of a circumstantial nature, to be sure which tended to show that the defendant did not perform the contract even as he conceded it to be His own testimony gave rise to a doubt whether he got as far as the ampulla of Vater in his examination of the gallducts, although he did not question that this was within the field of exploration under the contract as stated by himself The evidence was contradictory, it was true, and its weight did not seem, in every instance, to be with the conclusions of the jury, but the facts being for them, we must abide their verdict The defendant did not set forth in his pleadings any different contract from that alleged by the plaintiff in his complaint, but contended himself with a general denial Under this general denial it was competent for him to show, in order to defeat a recovery, not only that he did not make the contract contended for by the plaintiff, but what the contract entered into between them actually was But his evidence did not necessary change the issues It was still incumbent on the plaintiff to recover on the contract alleged, and the court did its full duty when it stated that issue to the jury, and instructed it that there could be no recovery unless the contract was proved as alleged

Society Proceedings

NEW YORK ACADEMY OF MEDICINE

Meeting held Dec 7 1916

The President, Dr Walter B James, in the Chair

PNEUMONIA

Nature of the Disease and Serum Treatment

Dr Rufus Cole Over 500 cases of pneumonia have been studied for the purpose of determining the relative frequency of the different types of infection From 60 to 65 per cent of all cases were due to pneumococci of Types I and II, from 10 to 15 per cent to pneumococci of Type III, while the remaining 25 per cent are due to pneumococci of Type IV Studies have also been made to determine the frequency of the occurrence of the different types in the mouths of normal persons Five hundred and twenty-seven persons have been examined and pneumococci were present in the mouths of 254 Where pneumococci were present they were of the atypical group, or Type IV, variety in about 25 per cent of the cases In 17 per cent the pneumococci were of Type III, while in a very small number of cases all together less than 12 per cent, they were of the so-called fixed types, I and II Moreover in practically all the instances in which organisms of these fixed types were found in normal mouths, it was possible to trace a close association between the person harboring them and a case of pneumonia of the same type These pneumococci of Types I and II tend to disappear from the mouth after a short time, just as they do after a convalescence from pneumonia The interpretation of these facts seems to be that pneumococci of Types I and II are to be considered as specific infectious diseases, just as typhoid and paratyphoid fever In pneumonia due to organisms of Type IV, infection is probably autogenous The interpretation of the conditions as regards pneumococci of Type III is difficult These are organisms of high virulence, yet are quite widely distributed in healthy mouths and so far as we have been able to learn there have been no differences, immunologic or otherwise, between the organisms of this type found in healthy mouths and those found in disease It is evident that isolation of cases due to pneumococci of Types I and II should be observed more strictly than has previously been done In the present stage of our knowledge it is not possible to have an opinion as to whether cases due to pneumonia of Type III would be of any value or not So far as infection with Type IV is concerned, isolation would probably have no effect

Specific treatment may be carried out in one of two ways Use may be made of the so called immunity reactions or drugs having specific harmful action on the invading bacteria may be used The use of the immunity reaction to hasten recovery may be made in one of two ways First, we can attempt to stimulate the infected organism itself to produce the immunity reaction more rapidly, and to a greater extent than would naturally be the case under the influence of the infection alone The only method of doing this at present would be by the administration of vaccine, but my studies and experience convince me that little can be hoped from this method in an acute disease like pneumonia The second method by which immune reactions might be made helpful is by the administration of the serum of animals rendered immune to the disease, and this is the method which we have employed We now have a method for determining in each case the type of infecting organism before serum treatment is commenced Moreover, from the standpoint of prognosis alone, such a determination of type is of great importance Immune horse serums have now been prepared against the three important types I, II and III The serum against pneumococci of Type I is of high power, that of Type II is considerably less powerful, while that of Type III has very little effect, either in the test tube or in experimental animals So far no attempt has been made to treat patients with Type III infection with serum A limited trial has been made with serum of Type II in corresponding cases, but the results have not been promising The use of immune serum agains infections with Type I organisms has given very gratifying results and our experience indicates that with proper use this serum has great therapeutic value In the hospital of the Rockefeller Institute, seventy-eight cases have now been treated, with six deaths, a mortality of 8 per cent When this is contrasted with the mortality of 25 per cent which is observed in our cases due to Type I infection before the use of the serum was begun, and the mortality of 25 and 30 per cent in other hospitals in which the determination of the type has been made, it is evident, so far as may be judged from this number of cases, that the serum is of considerable value These results are more striking in view of the fact that, of the six patients who died, only one could have been considered as efficiently treated in accordance with our present knowledge In order to obtain the best results, certain rules must be observed The serum must be given in large amounts It must be given intravenously Its administration must be commenced as early in the course of the disease as possible and its use must be continued until the infection has been definitely overcome It is a mistake to give one dose of the serum then wait until the disease has gained great headway and then make another abortive attempt. Before administering the serum a small dose of normal horse serum should be given subcutaneously in order to desensitize the patient in case he may be sensitive to horse serum Among the treated patients the incidence of empyema has been greater than among the untreated patients This probably means that in a certain number of cases otherwise fatal, the infection, instead of becoming general, is localized and empyema results Clinical experience suggests that the serum has some antitoxic action, but methods for demonstrating this are at present unknown The fact that this serum is effective makes it theoretically possible that refinements in technic and improvements in the method of producing the serum may also make the immune serum effective in infection due to the other fixed types

Use of Digitalis in Pneumonia

Dr Alfred E Cohn One can tell that digitalis is acting before the onset of symptoms disturbing to the patient The evidence of this consists primarily in the change of the T wave of the electrocardiogram When this change take place the P-R interval begins to lengthen, but usually the T wave change comes first We have applied these criteria to a study of the action of digitalis in pneumonia We first endeavored to show whether the drug acted and then to show whether it acted beneficially We found that it required 1 gm of digitalis at 0 4 gm a day to accelerate the T wave and also the P-R time What we had then to show was that in pneumonia with fever, with enough digitalis, changes did occur, and that in pneumonia with fever with no digitalis, no changes occurred This we have now been able to show When digitalis is given, the T wave is lengthened, and the lengthening may go on to the production of heart block Without digitalis we observed no instance of heart block in about 500 cases Those cases in which it had been reported that heart block took place bore out this contention, for with a single exception all had a sufficiency of digitalis Furthermore, the evidence shows that heart block does not occur until a sufficiency of digitalis has been given When it occurs it does no ultimate harm It should usually be possible however, to avoid it We found auricular fibrillation in twelve cases out of 123 or about 9 7 per cent When it occurred, the pulse rate rose immediately high enough to alter the prospect of recovery It was also shown that in nonfebrile cases of pneumonia with auricular fibrillation digitalis caused a fall in the Vs rate This could not be expected in every case, nor could the reason for its failure to act be given easily When fever was present it did not interfere with the action of the digitalis Auricular fibrillation might develop spontaneously in pneumonia Digitalis is not responsible Auricular fibrillation might disappear even after digitalis has been taken Auricular fibrillation if controlled is not fatal Even when the disease is fatal patients recover from the irregularity before death Digitalis does not do harm and may be life saving As a result of these experiences the hospital has for the time being adopted the following rules in the treatment of pneumonia 1 Digitalis is given to all patients as a routine 2 If patients are treated early they are given 1 gm at the rate of 0 5 gm daily 3 If patients are not seen until later, they are given 1 gm on the first day 4 If an indication arises later, digitalis is given again at the rate of 0 5 gm a day until the indication is satisfied but it is not continued beyond 2 gm The study shows that digitalis acts, and that under special circumstances, which are apparently not infrequent, its action is beneficial

Treatment of Pneumonia by Ethylhydrocuprein

Dr Alan M Chesney These studies are based on twenty-eight cases, and were carried out in collaboration with Dr Henry E Moore The results show that a bactericidal action for pneumococci can be secured in the blood serum of patients if they are given an amount of the drug represented by 0 024 gm per kilogram of body weight per twenty-four hours This amount was sufficient in every case to produce the result sought for within twenty-four hours, and to maintain it constantly during treatment Furthermore it was demonstrated that the time of appearance of bactericidal action might be shortened, provided the first dose was relatively large and was followed at intervals of not more than three hours by smaller amounts Thus for a person of average size the amount administered in twenty-four hours must be 1 5 gm and during the first twenty-four hours the best method of regulation would be to give an initial dose of 0 45 gm and follow it at intervals of three hours by individual doses of 0 15 gm During the second period of twenty-four hours the drug could be given in doses of 0 15 gm The hydrochlorid was much more readily absorbed than the base, and hence is to be preferred The oral route of administration has been found to be more satisfactory than the intramuscular route since for some reason the bactericidal action appears in the patient s serum much more quickly when the drug is given by mouth than when given intramuscularly In three cases the pericardial fluid was found to equal the blood in its pneumococcidal action

DISCUSSION ON PNEUMONIA

Dr David Bovaird Jr The three main objects to be kept in view in treating this disease are First we must make an effort to control the extent of the invasion of the lungs This has been attempted by the use of external applications of various kinds by medicines and by antiseptics the bactericidal action of which it was hoped would limit the action of the bacteria in the lungs and would overcome the invading organisms Second we have sought in various ways to control the fever and other constitutional effects of the toxemia by hydrotherapy, by drugs and by fresh air Third, efforts are made toward the control of the circulation Of all our efforts made in this direction, the only thing that has survived is the use of digitalis In order to establish a foundation for comparison I have taken the records of over 200 cases of lobar pneumonia treated in the Presbyterian Hospital just previous to the introduction of the serum treatment One hundred of these cases in adults showed a mortality of 30 per cent Then we began grouping the cases along the lines which Dr Cole has described, and we found that the mortality in this series was 8 per cent, practically the same as in the 100 cases immediately preceding Within the last eighteen months we have treated fifteen cases of Group I pneumococcus pneumonia with the appropriate serum and have had a mortality of two one patient being a man aged 77 who had a complicating empyema, and the other, a patient in the surgical side of the hospital There occurred during the same period twenty-five cases in which the serum treatment was not given and these showed a mortality of 28 per cent, which would have been higher had it not been for the fact that some of these patients were children It seems that we may expect a mortality of 30 per cent in untreated cases, in the cases in which serum was given, the mortality was 14 per cent We have had three cases during the past three months that impressed us especially with the fact that the serum has some definite specific action The first patient was a man, aged 28 with a right upper lobe pneumonia whose temperature rose to 108 4 F He was given serum on the fifth day, two injections, after which his temperature fell and remained down, and he made an excellent recovery The second patient was a woman who came in on the second day of her pneumonia and received serum on the third day Her temperature fell almost immediately and remained down, though undoubtedly she had a frank lobar pneumonia The third patient was an orderly in the hospital He received serum within thirty-six hours of the onset of the disease He received two injections on the second day, his temperature fell almost immediately In forty-eight hours it reached normal and he made a rapid recovery Such experiences have been quite ample to convince every one on the staff that in pneumonia due to pneumococci of Group I we have in the serum a remedy of very decided value

Dr L Emmett Holt In times past the diarrheal diseases have taken first place in the mortality of young children In recent times, especially during the last five years in New York, there has been a steady fall in the curve from diarrheal diseases, while the curve of mortality from respiratory diseases, especially pneumonia, has steadily risen Thus far this year, for the first time the deaths from respiratory diseases greatly exceed those from diarrheal diseases To November 1 of this year there have occurred 2 246 deaths from diarrhea in infants under 1 year of age and 2 523 deaths from respiratory diseases Under 2 years the mortality from diarrheal diseases was 2 642 while from respiratory diseases it was 3,820 In addition we must take into consideration that we still have November and December to account for months in which deaths from diarrhea are infrequent while respiratory deaths are constantly on the increase The indications are that the mortality of infants under 2 years of age from respiratory diseases for the year will be at least 1,300 greater than from diarrheal diseases The deaths from all contagious diseases to November 1, including those from poliomyelitis were but 1,012, a little more than one-fourth those from respiratory diseases Pneumonia has thus clearly become the most important disease of young children This disease at this age is not often the clear cut lobar pneumonia due to one of the four groups of pneumococci, which one meets in the adult, it is usually a mixed infection There are found other organisms which add much to the severity of the disease and modify its clinical course, making it less amenable to treatment than the same disease in the adult Observations made at the Babies' Hospital have shown that about 75 per cent of the pneumococcus infections in children under 3 years of age belong to Group IV It therefore seems that serum treatment as yet offers little prospect of help in pneumonia in the early years of life, first, because one so frequently has to deal with a mixed infection, and, second, because the pneumococci most often belong to Type IV Against this as Dr Cole has shown it is obviously impossible to provide a specific serum Children frequently show pneumococci of Type IV probably because of the wide prevalence of the organism and the extreme susceptibility of the patients This brings up the question of the prevention of respiratory disease in young children It is known that many adults harbor pneumococci of Type IV, but do not develop the disease Many times a child may at first show only the respiratory symptoms of a common cold, and yet pneumonia will supervene and may prove fatal, not because of the virulence of the infecting organism, but because of the susceptibility of the individual

Dr Robert H Halsey Cases of pneumonia may be divided into two classes first, those in which the heart shows no difficulty as the disease progresses, and, second, cases in which changes in the heart occur In the great majority of the cases of the first class it is unnecessary to use digitalis I am convinced of this because I have worked with the electrocardiograph and know its value in recording and measuring the changes There is, however, a time when digitalis is necessary But if digitalis is used in every case, heart block will develop in some of the cases, as has been demonstrated One does not seem to be justified in such cases in adding an additional burden, of dissociation of auricle and ventricle, to a heart already under stress The cases with fibrillating auricle may be divided into those that have the fibrillation before the disease starts and those in which the fibrillation starts after the disease has begun In the latter class of cases, digitalis controls the condition nicely, and should be used until control is obtained In the former class, which has the fibrillation before the disease starts and will have it afterward, digitalis is indicated and should be employed if required, to retain control while in health

Dr Arthur F Chace A word of warning should be sounded against the use of stock polyvalent vaccines The polyvalent vaccine offers a great temptation to the general practitioner, and emphasis should be laid on the fact that it is impossible to provide a stock vaccine that is of dependable therapeutic value It is possible to accomplish much if we avail ourselves of the combined action of serum and ethylhydrocuprein

Dr Rufus Cole I object to the use of the polyvalent serum because it is an additional burden on the patient without the production of any good result

WESTERN SURGICAL ASSOCIATION

Twenty Sixth Annual Meeting, held at St Paul Dec 15 16 1916

The President, **Dr L W Littig**, Davenport, Iowa, in the Chair

New Instrument for the Application of the Sewing Machine Stitch in Gastric and Intestinal Surgery

Dr E P Quain, Bismarck, N D The results in forty cases have been very satisfactory Leakage is effectively prevented by this double, interlocking suture The time previously consumed for making a gastro-enterostomy has been reduced by nearly one half To prove the hemostatic efficacy of the method in gastro-enterostomy, a gastric lavage was given to the patients with duodenal ulcer immediately after the operation and repeated about two hours later With the exception of a few shreds of clots in two or three instances, such as might easily have escaped during the operation performed without clamps, there was no macroscopic evidence of oozing Occasional emesis after the operation gave the same negative evidence Previous observations with other methods of suturing had rarely, if ever, shown such complete absence of bleeding in the postoperative vomitus

Serous Meningitis Following Traumatism

Dr Charles H Lemon, Milwaukee, Wis A man fell 40 feet from a coal dock and was picked up unconscious with a compound fracture of the right wrist He remained unconscious only a few minutes, was removed to a hospital, was operated on for the fracture under an anesthetic, and for five days was apparently normal On the sixth day he began to have headache and this was followed by a progressive right hemiplegia, which was complete on the ninth day Believing that he had probably fractured his skull on the left side and that a hemorrhage was taking place from the posterior branch of the middle meningeal artery, I advised an operation to remove the blood clot This was declined The following day the man became totally unconscious, and when he was in a state of coma, permission was given to operate I trephined the skull over the middle fossa and found no clot The cortex of the brain, on the opening of the dura presented an ecchymotic appearance No cerebrospinal fluid appeared I passed a grooved director between the dura and brain, and a few drops of cerebrospinal fluid escaped In a few minutes this increased to a small stream At the end of fifteen minutes the patient began to show signs of life The breathing improved The operation was performed without an anesthetic A drain was inserted beneath the brain and the wound closed The man made an uneventful recovery and is still living

DISCUSSION

Dr A E Halstead, Chicago My conception of a serous meningitis is entirely different from that of Dr Lemon's A serous meningitis, as I understand it, is caused by a toxemia or a mild infection in which there is no pus or no gross manifestations of infection in the meninges I have operated in several of these cases I have also seen cases of diffuse meningitis in which the fluid was still serous or retained the characteristics of normal cerebrospinal fluid These cases occurred in the terminal stage of an infection I think a weak point in the doctor's paper is the fact that he has no necropsy to sustain his diagnosis of such a traumatic serous meningitis

Dr John L Yates, Milwaukee, Wis In these cases of increased intracranial pressure, when there is no foreign body, there is a disproportion in the amount of cerebrospinal fluid secreted and the amount of fluid absorbed This may be the result of irritation, chemical or bacterial infection, or trauma

Dr Frederick A Dunsmoor, Minneapolis Dr Frank Hamilton, in 1873, impressed on me the point that whenever a man who has had a slight injury of his head is bewildered, or even unconscious for a moment, and then gets up and walks off, there is a grave possibility of tragic symptoms developing later

Dr M M Ghent, St Paul Dr Halstead said that we have no postmortem reports to sustain the diagnosis of traumatic serous meningitis One drunken miner struck another on the back of the head with a large rock The man was stunned, I saw him about five minutes afterward He was able to talk There was a slight abrasion, not more than half an inch long, just back of the ear He was put to bed On the second day he complained of headache, on the third day he had a little fever and began vomiting He was taken to the hospital, and lived seven days We opened the skull and found no fracture, no hemorrhage, but the brain on the injured side was just like putty, while the opposite side seemed to be entirely normal

Cardiolysis

Dr John E Summers, Omaha Cardiolysis, first performed by Peterson at the suggestion of Brauer, in 1902, is done in cases of chronic adhesive mediastinopericarditis The heart muscle in two cases reported by me was in an advanced, degenerated condition Nothwithstanding this, one patient, a man, lived four years and ten months after operation, was able during this period to earn his living and was almost free from heart symptoms until the last several months of his life The second patient, a young woman, lived nearly a year after operation, had symptomatically made a recovery so far as the function of the heart was concerned, being able to drive a large automobile from Omaha to Denver, 600 miles, cross the Rocky Mountains, and travel to a height of 12,000 feet without discomfort Overstrain however, brought on an attack of decompensation which proved fatal

DISCUSSION

Dr William R. Cubbins, Chicago Dr Summers is to be congratulated on undertaking operative interference in this case There is no question that the relief will be marked when we have enough courage to remove the chest wall as it should be done

Dr R C Coffey, Portland Ore Not all of these cases have been reported Dr William J Mayo and I were attending a clinic in New York when we saw this operation performed by a prominent surgeon The anesthetic was intratracheal, and just about the time the chest wall was completely removed the patient closed his eyes and never breathed again That case has not been reported

Dr George M Gray Kansas City, Kan In another case I resected, as I remember, the fourth fifth and sixth ribs The operation was done about a year ago under local anesthesia The patient, a man aged 32, improved markedly

Factors Which Determine the Extent and Duration of Peritoneal Adhesions

Dr Arthur E Hertzler Kansas City, Mo The principles governing the formation of adhesions are the same as those which pertain to wound healing The exudate forming about wounded surfaces must coagulate to form fibrillar fibrin as the preliminary step If this is interfered with, primary healing does not take place Permanent adhesions correspond to healing by first intention, while temporary ones parallel healing by second intention The purpose of permanent adhesions is to repair solutions of continuity, while temporary adhesions serve the purpose of preventing the spread of infection When repair is desired, the factors inimical to blood coagulation must be kept from the site of the wound Temporary adhesions release themselves after their function has been performed, and it is not necessary to break them up when operating in infected tissue in order to prevent subsequent deleterious consequences

Position in Abdominal Drainage

Dr Roland Hill, St Louis The lateral position, in which the patient is placed on the right side, is very efficient In this position the head of the bed is slightly elevated, about 30 degrees, and a pillow is placed under the region of the liver, so as to prevent accumulation of fluid in the kidney region In a series of fifteen cases treated in the lateral position, there was an absence of mortality In a series of forty-two drainage cases treated in the abdominal position, there were two deaths In forty-seven cases treated in the Fowler position, there were five deaths

Radical Cure of Chronic Osteomyelitis

Dr Emil G Beck, Chicago I have adopted the following plan in dealing with these cases First, I try the most conservative treatment, namely, the injection of bismuth paste, and am able to clean up 60 per cent of the cases If this method has been given a fair trial for several months and there is no improvement, the remaining 40 per cent of cases are treated by a most radical operation I expose the diseased area by an adequate skin flap incision that I may remove every vestige of the diseased bone, under ocular inspection I do not permit any dead space in the resected cavity, and I remove enough bone to make a flat surface of bone Then I implant the skin flap against the bone, packing gauze against it to keep it in contact I use no suture material, and leave the wound widely gaping and permit granulations to form on the denuded surfaces The skin on the granulating surfaces is reproduced by means of adhesive plaster dressing, which is changed daily and is the best form of epidermization of large denuded areas I use no skin grafts

Traumatic Surgery of Liver

Dr Oliver J Fay, Des Moines, Iowa Operations on the injured liver should be performed with all the speed compatible with gentleness and a thorough examination of the abdominal viscera Temporary control of the hemorrhage is usually to be obtained by tamponing Suture of the wound, ligation of the larger vessels, and tamponing are the most serviceable definitive procedures Tamponing is the method employed in the largest number of cases, it effects temporary hemostasis until other measures can be employed, it controls hemorrhage from wounds which are inaccessible or which could be reached only by an unwarranted incision, it is the least time consuming procedure, and is the method of choice when the patient is in a precarious condition, and speed is the first essential It is a valuable adjuvant to suture of a wound when hemostasis is not assured, or the possible presence of other liver injuries cannot be excluded, and in every case in which the simple ligation of vessels has been employed it is essential when the presence of infection cannot be excluded

The Open Hospital

Dr Lawrence W Littig, Davenport, Iowa The most important problem before the medical profession at the present time is the investigation and classification of hospitals The possibility of such investigation has already produced fruit, and signs of life are already evident in hospital boards and hospital staffs that had long been dead so far as the spirit of improvement and progress is concerned The fifth or intern year, as already adopted by an increasing number of medical schools and state boards, will have even a more decided influence for good in the hospitals that desire interns, since both the college and the state board will *insist on* knowing about the character of the work done in a hospital before it is put on the accredited list But there are many hospitals that *do not care* for interns, and these can be reached by the state board through the training school, since practically all of the hospitals under consideration conduct training schools, the graduates of which present themselves before the state board for examination for credentials as registered nurses Publicity is the only influence that will reach all of the hospitals under consideration, and stimulate all hospital boards and hospital staffs to action

Cyst of the Suprarenals

DR HERMAN E PEARSE Kansas City, Mo Hemorrhage is the foundation of the pathogenesis of suprarenal cysts The fully developed cyst is usually, as in my case recognized only when the hemorrhage has been repeated from time to time, and operation is at last done for a demonstrable tumor The condition of suprarenal hemorrhage being concealed retroperitoneal and not showing in any excretion of the body, must of necessity be occasionally unrecognized in its early stages and may often if suspected and looked for, be recognized as the foundation of phenomena otherwise quite puzzling to the examiner

Surgical Treatment of Banti's Disease Report of Three Cases

DR CHARLES D LOCKWOOD, Pasadena Calif I have collected reports of thirty-eight cases from the literature which with three cases of my own make forty-one in all Six of these patients died as a result of operation, making an operative mortality of 14 5 per cent Operation done in the first stage of the disease is curative in a large percentage of cases and the operative mortality is no higher than in other major abdominal operations In the second and third stages of the disease, there is still a large percentage of recoveries with great improvement of health

Intracanalicular Papilloma of the Breast

DR E STARR JUDD Rochester, Minn In fifty of 100 consecutive cases of discharging nipples, a serohemorrhagic discharge was present, and in the remaining fifty some other form of discharge was described Carcinoma appeared to be the most common lesion producing a discharge from the nipple, it was almost invariably associated however, with a tumor in the breast Usually the tumor was present some time before the discharge began In 26 per cent of these cases chronic cystic mastitis was present, twelve of them were in the first group of fifty, and fourteen in the second In some of our cases of chronic cystic mastitis, however, the discharge may have been from a duct papilloma, for often these tumors are very small and might easily have been overlooked This series seems to lend evidence to the contention that a hemorrhagic or serohemorrhagic discharge from the nipple in the absence of a palpable tumor is most often produced by benign intracanalicular papilloma In view of this fact, treatment should be conservative particularly in young women In older patients especially if the condition is associated with chronic cystic mastitis, the mammary gland should be removed If there are indications of malignant changes, a radical operation is advisable

The Radical Cautery Operation in Breast Carcinoma

DR JAMES F PERCY, Galesburg, Ill The most important improvement that can be made in the technic of the modern operation for breast carcinoma is the use of the hot knife in place of the cold steel knife The wound should be left open in order that small points of recurrence may be watched for which, if they appear, can be cocainized and treated by heat at once After the wound has been made, no matter how extensive, epithelization can be hastened by covering with strips of adhesive plaster, as recommended by Beck Carcinoma is most prone to recur wherever blood vessels are left in the wound Practically every recurrence is about a blood vessel I would urge that no bleeding vessel be clamped with a hemostat, but it is more important that the bleeding should be arrested by the application of the cautery knife, which not only stops the hemorrhage, but also kills the most common origin for the cancer nidus in its incipiency I would advise that a roentgenogram be made of the thorax If metastasis into the lung pleura or ribs is disclosed, the treatment should consist of massive doses of the Roentgen ray administered by an expert roentgenologist The four most essential points in the technic are, first, to mark out on the iodin covered skin surface with the handle of the steel knife the limits of the incision to be made, second, do not cut with the cautery knife from above downward into the skin in following this line, but from within outward, third, and very important, in dissecting about the axillary vessels and brachial plexus, hold the parts that are to be removed with the fingers of the free hand, encased in a medium weight rubber glove, and keep the fingers close to the cautery knife This is the most practical way of gaging the degree of temperature that the tissues and blood vessels will stand without being injured Fourth, apply the heat until all the tissues that were fixed by the disease are freely movable To do otherwise simply means that heat dissemination in the most effective way has not been obtained

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Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Obstetrics and Diseases of Women and Children, York, Pa

December 1916 LXXIV No 6

1 Appendicular Abscess Hemorrhage Death M Tate Cincinnati —p 933
2 *Drainage for Pus Conditions in Pelvis During Pregnancy F Reder, St Louis —p 935
3 **Case of Rupture of Uterus Sepsis Operation Recovery* R B Hall, Cincinnati —p 942
4 *Rupture of Uterus in Cesareanized Women, Review of Literature J N Bell Detroit —p 950
5 *Rupture of Cesarean Scar A J Rongy, New York —p 954
6 Postmortem Cesarean Section, Report of Two Cases O G Pfaff, Indianapolis —p 967
7 *Gunshot Wounds of Abdomen in Pregnant Women L H Smead Toledo —p 972
8 Teaching Obstetrics Under Improved Conditions H Schwarz, St Louis —p 981
9 *Lymph Nodes Extract, Its Preparation and Therapeutic Action* D Hadden Oakland, Cal —p 989
10 *Blood Pressures During Operations C W Moots Toledo —p 996
11 Diagnosis of Pelvic Troubles J H Carstens, Detroit —p 1002
12 Care of Patients Before and After Operation H W Yates, Detroit —p 1006
13 Operative Judgment as Factor in Surgical Mortality and Morbidity R E Skeel Cleveland —p 1012
14 *Removal of Appendix for Cure of Trifacial Neuralgia and Other Nerve Pain About Head and Face M I Rosenthal, Fort Wayne, Ind —p 1031
15 Pemphigus Neonatorum F H Falls Chicago —p 1048

1, 2 and 3 Abstracted in THE JOURNAL, Oct 21, 1916, p 1251

4 Abstracted in THE JOURNAL, Oct 21, 1916, p 1252

5, 7 and 10 Abstracted in THE JOURNAL, Oct 28, 1916, p 1324

14 Abstracted in THE JOURNAL, Oct 28 1916, p 1326

American Journal of Physiology, Baltimore

December, 1916 XLII No 1

16 *New Evidence in Favor of Chief Vasoconstrictor Center in Brain S W Ranson Chicago —p 1
17 *Afferent Spinal Path for Depressor Reflex S W Ranson and P R Billingsley Chicago —p 9
18 *Id S W Ranson and P R Billingsley Chicago —p 16
19 Oscillatory Variations in Contractions of Rhythmically Stimulated Muscle W B Cannon and C M Gruber, Boston —p 36
20 *Factors Affecting Coagulation Time of Blood Epinephrin G P Grabfield Boston —p 46
21 Physiology of Stomach Gastric Hunger Contractions in Amphibia and Reptilia T L Patterson Kingston, Canada —p 56
22 Physiology of Atrioventricular Connection in Turtle H Laurens New Haven Conn —p 89
23 *Some Features of Osteogenesis in Light of Vital Staining P G Shipley and C C Macklin, Baltimore —p 117
24 Staining of Amphibian Larvae with Benzidine Dyes Behavior of Lymphatic Endothelium G B Wislocki Baltimore —p 124
25 *Physiology of Mammalian Auricle. Influence of Vagus Nerves on Fractionate Contraction of Right Auricle C J Wiggers New York —p 133

26 *Id Time Relations of Auricular Systole C J Wiggers, New York —p 141
27 Physiology of Reproduction in Birds Variations in Chemical Composition of Reproductive Tissues in Relation to Variations in Functional Activity O Riddle and J V Lawrence Chicago —p 151
28 Conditions Involved in Accumulation of Dissolved Substances in Blood Relation of Acidity to Retention of Sugar and of Urea by Colloids of Blood and Kidney E B Reemelin and R Isaacs Cincinnati —p 163
29 *Vagus Nerves in Pneumonia W T Porter and L H Newburgh Boston —p 175

16, 17 and 18 **Afferent Spinal Paths and Vasomotor Reflexes**—Experiments made by Ranson and Billingsley resulted in the following observations Afferent pressor impulses travel up the spinal cord in the apex of the posterior horn on both sides of the cord but somewhat better homolaterally It is probable that a small portion of the pressor impulses passes directly forward through the gray matter to the efferent vasomotor neurones of the white rami Most of the pressor impulses ascend through the apical path in the posterior horn to the vasoconstrictor center of the brain There is some evidence which points to the location of the reflex vasoconstrictor center in the region of the fovea inferior in the floor of the fourth ventricle The efferent path from the vasoconstrictor center to the vasomotor neurones of the white rami is located in the ventral or lateral funiculi The depressor path is located in the ventral part of the lateral funiculus and its conduction is bilateral, although somewhat better on the contralateral side as indicated by the results of hemisection There is some evidence that a separate vasodilator center may exist in the region of the area postrema lateral to the obex in the floor of the fourth ventricle Weak stimulation of an afferent spinal nerve causes a drop in blood pressure which is a true vasomotor reflex and independent of respiratory movements A drop in blood pressure obtained from strong stimulation may be due to excessive respiratory movements True pressor reflexes are produced only by strong stimulation There is little evidence in favor of the conception of two kinds of afferent vasomotor fibers and considerable evidence against it

The glossopharyngeal and vagus nerves and the depressor branch of the latter are all visceral nerves and are connected with the visceral afferent column in the medulla, while the fifth cranial and the spinal nerves are all connected with the somatic afferent column This difference in the central connections of the two groups of nerves is sufficient to account for the difference in the vasomotor reactions obtained from them No clearly defined path for afferent impulses to the respiratory center could be found The fibers which carry these impulses seem to be somewhat widely scattered in the cord In the cat pain conduction in the spinal cord is bilateral and effected through a series of short relays For a few days following bilateral injury to the apices of the posterior gray columns there is hyperesthesia of the hind limbs and all parts of the body behind the lesion

20 **Effect of Epinephrin on Coagulation**—Grabfield found that the intravenous administration of minimal doses of epinephrin (0 143 c c of a 1 100 000 solution per kilo) decreases coagulation time by increasing the amount of prothrombin in the circulating blood

23 **Osteogenesis in Light Vital Staining**—Young and growing animals were stained by Shipley and Macklin with azo dyestuffs and metallic colloids and the young osseous tissue was studied A report of such a histologic study is presented in this paper The avidity with which cells eat the vital dye granules places them in the category of macrophages and demonstrates the phagocytosis of which they are capable The osseous tissue is stained very darkly and this color is much more marked in the growing than in the fully developed bone Especially dense staining marks the actively growing areas of the bone The primary ossification centers are stained only if they are areas of osteoblastic activity at the time of the giving of the dye This is most evident in the thin bones of the developing skull where the primary centers are almost without color and the rapidly advancing edge of the membrane bone is heavily stained It was expected that the osteoclasts would be found loaded with blue granules Instead of this no blue at all was to be seen in their bodies In other words these cells are nontrypanophilic and nonphagocytic They can therefore not be classed with the pyrrhol cells on a physiologic basis

The only cells which manifested the characteristic trypanophil reaction were the ordinary reticulo-endothelial cells of the marrow reticulum Though these were everywhere present throughout the marrow cavities of the young bone, they seemed to be most numerous in the areas where erosion of cartilage and bone was going on most actively At the margin between cartilage and bone at the epiphysis there was a narrow zone in which these macrophages were very numerous, and a distinct line of them could be made out along the edge of the cartilage to which they were apparently closely applied In a region of the new endochondral bone, just behind the advancing osseous border namely, in the region in which the new spicules of endochondral bone were being most actively resorbed, they were more thickly grouped than in the rest of the marrow cavity The pyrrhol cells or macrophages may therefore be considered to take some part in osteogenesis and it is believed that they ingest the debris and assist in clearing it away Any office of the osteoclasts in the resorption of calcified cartilage or bone must be performed by the agency of chemical solution or mechanical erosion through pressure exerted by them on the material which is being broken down

25 **Influence of Vagus on Auricle**—The depression of the mechanical contraction of the mammalian auricle which follows vagal excitation, Wiggers says, is due to an actual decrease in the contraction of the individual cardiac units The decrease is not secondary to changes in rhythm or to alterations in conductivity The decrease may be favored by the depression of irritability produced by vagus stimulation but is primarily due to the depressant effect of the vagus on the function of contractility

26 **Time Relations of Auricular Systole**—About 0 02 second after an impulse is emitted from the sino-auricular node the right auricle begins to contract as evidenced by the rise of intra-auricular pressure The precise onset of this mechanical shortening Wiggers says cannot be determined from the waves of the venous pulse, but may be approximated by the peak of the P wave taken by Lead II This mechanical shortening is due to a series of fractionate contractions which spread across the auricle in the wake of the excitation wave The auricle continues to shorten as long as the contracting units of cardiac tissue overbalance the relaxing units As soon as an exact balance is established no further shortening is possible and the termination of the systole has come This period lasts about 0 11 second The contraction of the auricle exerts a dynamic action by elevating intra-auricular pressure This occurs early in systole but continues for only 0 05 second, during the remainder of systole the intra-auricular pressure falls This dynamic interval, as the period during which pressure rises is called, may be estimated from the rise of the presystolic wave of the venous pulse, a-wave, but the total duration of systole can be determined neither from the venous record or the electrocardiogram

The auricle continues to contract after excitation of the ventricle has occurred as shown by the fact that it terminates during the R variation of the electrocardiogram The ventricle normally never contracts until auricular systole is completed Occasionally ventricular systole follows immediately but usually an intersystolic interval, averaging 0 024 second, intervenes The duration of this interval can be accurately determined neither from the jugular tracing nor from the electrocardiogram The a-c interval of the jugular pulse in normal and regular rhythms very nearly equals or at least varies with the A_s-S_s interval, but the latter is not a criterion of the intersystolic interval and does not vary with it

29 **Vagus Nerves in Pneumonia**—Since the respiratory disorder in pneumonia is manifested both in the lungs and in the respiratory bulbar center, and since these two are connected by the vagus nerves a causal relation between the dyspnea and the exhaustion of the respiratory center was sought by Porter and Newburgh by section of these nerves This procedure led to the discovery that section of the vagus

nerves protects the respiratory cells and prevents their exhaustion in pneumonia Moreover in pneumonic dogs in which both vagus nerves have been cut, the rate of respiration remains normal

Annals of Surgery, Philadelphia

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30 *Tissue Fragments and Wound Infection K Taylor, France—p 641
31 *Blood Pressure and Graphic Vasomotor Changes in Periphery During Ether Anesthesia W E Muns, Columbia Mo—p 645
32 Blood Pressure and Prostatectomy A H Peacock, Seattle, Wash—p 659
33 Anatomy of Sinus Frontalis in Man J P Schaeffer Philadelphia—p 665
34 *Tooth Germ Cysts of Jaw M G Wohl, Omaha—p 672
35 *Two Cases of Thoracic Aneurysm Wired Four Years Ago W C Lusk New York—p 680
36 Chronic Cystic Mastitis or Abnormal Involution of Breast P Syms New York—p 696
37 Regressive Changes in Breast G Barrie, New York—p 707
38 Spondylitis Deformans Relieved by Albee Operation H Finkelstein New York—p 713
39 Felons G M Dorrance, Philadelphia—p 716

30 **Tissue Fragments and Wound Infection**—With a view to determining the relative importance of a foreign body and of dead tissue in the initiation and rate of extension of infection in wounds, experiments were undertaken by Taylor The implantation of a sterile foreign body or a small piece of sterile dead muscle alone produced no macroscopic lesions The implantation of a foreign body infected with tetanus bacilli, *Staphylococcus aureus B aerogenes-capsulatus*, or streptococci produced usually a localized abscess formation without invading the surrounding normal tissues The addition of a small portion of dead muscle tissue in the region of the infection produced a more rapid and diffuse inflammatory process with earlier and more extensive abscess formation than the wounds containing only bacteria or those containing infected cloth The implantation of infected cloth together with muscle tissue produced a more active and destructive lesion than the implantation of either alone When infected with tetanus bacilli the presence of dead muscle fragments determined a high mortality Of the two substances, cloth and devitalized muscle, in the presence of infection, the muscle produced the more acute infective process The result of these experiments suggests that in the cleaning of fresh wounds at least as much care should be exercised to remove separated and devitalized fragments of soft tissue as is taken to remove other foreign bodies In all operative procedures where blunt dissection is practiced it should be remembered that torn fragments of devitalized tissue may remain to become a ready soil for the incubation of any bacteria which may gain access to the wound

31 **Blood Pressure During Ether Anesthesia**—The purpose of Muns' investigation was to demonstrate graphically the actual changes in the condition of the peripheral circulation and in blood pressure accompanying long continued ether anesthesia, and the relation which the vasomotor changes may have to the blood pressure He found that ordinary third stage ether anesthesia prolonged beyond one hour results in more or less marked vasodilatation in the periphery This is a progressive change more or less regular in character, increasing *directly in proportion* to the lengthening time of administration In most cases the limit of vasodilatation is not reached seven hours after the beginning of the anesthetic, but occasionally the extreme of the condition may be reached after a shorter administration of ether There is a direct relationship between the condition of the vasomotor control and the blood pressure The end-result of ether *depression is* loss of function The syndrome, known as postoperative shock, is a combination of the effects of excitation and depression, and varies directly with the algebraic sum of these two factors The vasomotor center is the variable factor in bringing about the vasomotor change, the variation is directly dependent on the changes in the vasomotor center produced by ether

34 **Tooth Germ Cysts of Jaw**—Cystic tumors of the jaw are divided by Wohl into (*A*) inflammatory, (*B*) tooth germ (chorioblastoma), (*a*) unilocular, (*b*) multilocular, (*c*) solid Chorioblastomatous cysts of the jaw originate from the embryonal rests of epithelial cord of enamel organ

35 **Thoracic Aneurysm Wired**—Both cases cited by Lusk were given antispecific treatment after the wiring operation and they developed an ability to endure very severe exertion Special attention is called to the need for treatment of aneurysm with the antispecific remedies

Archives of Diagnosis, New York

October 1916 IX No 4

40 Clinical Diagnosis of Syphilitic Aortitis I J Levy New York—p 295
41 Clinical and Laboratory Manifestations of Malignancy A Sturmdorf New York—p 302
42 Thymus Disease in Children Case of Thymus Hypertrophy H B Sheffield, New York—p 312
43 Roentgen Diagnosis of Stomach Ulcer, Duodenal Ulcer and Stomach Cancer I H Levy, Syracuse—p 316
44 Tonsil as Portal of Infection Other Than Rheumatic H Hays New York—p 323
45 Diagnostics of Some Abdominal Diseases of Orthopedic Origin S Epstein New York—p 327
46 Clinical Diagnostics of Diseases of Heart E E Cornwall Brooklyn—p 331

Boston Medical and Surgical Journal

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47 History of Growth of Antituberculosis Movement in Massachusetts V Y Bowditch Boston—p 847
48 Shock at Front W T Porter Boston—p 854
49 Failing Heart Compensation During Pregnancy C H Lawrence Boston—p 858
50 Etiology of Epilepsy Condition of Teeth as Factor in Its Production Relation to Alcoholism and Mental Defect H Powers Brookline—p 861
51 Case of Epidural Intraspinal Abscess of Pyogenic Origin W J Mixter Boston—p 864
52 Intraspinal Epidural Abscess (Pyogenic) Case with Necropsy J B Ayer and H R Viets, Boston—p 865

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53 Workingmens Compensation Act J C Crosby, Pittsfield—p 883
54 Consideration of Workingmens Accident and Sickness Insurance in Their Relation to Medical Profession F J Cotton, Boston—p 893
55 History and Operation of Massachusetts Workingmen's Compensation Law F D Donoghue Boston—p 897
56 Workingmen's Compensation for Accident and Sickness from Point of View of General Practitioner W H Merrill Lawrence—p 902
57 Workingmens Compensation for Accident and Sickness from Point of View of Organized Labor J P Meade, Brockton—p 905
58 Administration of Workingmens Compensation Act by City of Cambridge H J Cronin Cambridge—p 906
59 Industrial Health Legislation I W Anthony, Haverhill—p 911
60 Medical Department of Modern Industrial Plant F O West Woburn—p 914

Indiana State Medical Association Journal, Fort Wayne

December 1916 IX No 12

61 *Hyperthyroidism and Its Relation to Certain Pelvic Disorders T B Eastman Indianapolis—p 465
62 *Influence of Modern Immunity Research on Surgery M N Hadley, Indianapolis—p 470
63 Influence of Modern Immunity Research on Medicine C B Danruther La Porte—p 475
64 Blood Cultures in Epilepsy J A MacDonald and S R Edward Indianapolis—p 482

61 Abstracted in THE JOURNAL, Oct 21, 1916 p 1250
62 Abstracted in THE JOURNAL, Oct 28, 1916, p 1326

Journal of Cutaneous Diseases, Boston

December 1916 XXXIV No 12

65 Keratosis Blennorrhagica Report of Case M Haase, Memphis Tenn—p 817
66 *Calamine Liniment W A Pusey, Chicago—p 826
67 Relations of Diets to Seborrhea D W Montgomery San Francisco—p 829
68 Case of Darier s Disease (Keratosis Follicularis) in Its Early Stages M Scheer, New York—p 837

66 **Calamine Liniment**—In order to overcome the drying effect of a simple calamine lotion, Pusey uses a liniment whose formula is practically that of the common calamine lotion with the addition of olive oil and enough tragacanth to make a permanent emulsion The essential feature of this liniment is that by utilizing the emulsifying action of

tragacanth a permanent emulsion is produced which maintains an even mixture of all the ingredients The formula for this liniment is as follows

		gm or c c.	
Pulvis tragacanthae		4	ʒ i
Phenolis et glycerini (mixed)	aa	66	♏ x
Zinci oxidi et calaminis	aa	30	℥ i
Ol olivae		120	℥ iv
Aquam	q s		O i
Ol bergamoti			gtt xxl

The few drops of phenol keep the liniment sweet indefinitely The formula gives a thick emulsion, like very thick cream or a cod liver oil emulsion If a thinner emulsion is desired an equally permanent one about the consistence of ordinary cream can be made by using ½ dram of tragacanth, instead of a dram, to the pint

Journal of Nervous and Mental Disease, Lancaster, Pa

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69 *Hyperplasia of Pineal Body H H Bell St Louis—p 481
70 Types of Neurologic Cases Seen at Base Hospital J J Thomas Boston—p 495
71 *Case of Posterolateral Sclerosis Following Streptococcus Infection Transmitted to Rabbit as Myelitis E M Williams Sioux City Iowa—p 503
72 Three Cases of Familial Spastic Paralysis C E Riggs St Paul Minn—p 505
73 *Intentional Hypertonia Cortical Localization of Muscular Tonus S I Schwab St Louis—p 510
74 Epileptic Dementia with Recovery D A Thom, Palmer Mass—p 517

69 **Hyperplasia of Pineal Body**—The pineal gland in two cases was examined by Bell In each instance it was enlarged and contained cysts Bell says that in none of the organs of internal secretion are there cells with characters similar to those of cells of the pineal body The pineal cells in young individuals are similar in number and structure to those in pineal bodies of older individuals after involution is established Pineal cells are intimately related to fibers which resemble those of neuroglia and there are transitional forms between neuroglia cells and pineal cells Pineal cells appear to be modified neuroglia cells In association with the process of involution there may be tumor-like enlargement of the pineal body characterized by proliferation of the pineal cells In association with hyperplasia of these cells there is no functional disturbance in other organs of the body

71 **Posterolateral Sclerosis Following Streptococcus Infection**—The first patient whose history is cited by Williams had the symptoms of a posterolateral sclerosis with no definite or evident cause Six old roots in the anterior lower jaw were removed and a culture made A hemolytic streptococcus was found which injected into a rabbit gave a posterior paraplegia with incontinence of urine and feces fourteen days after the inoculation Further culture from the cord did not show anything as the rabbit was probably killed too soon after the occurrence of the paralysis (third day) The cord showed an area of myelitis and softening

73 **Intentional Hypertonia**—By intentional hypertonia Schwab means this muscle groups which in a state of flaccidity or semiflaccidity shows *to palpation no spasm* of contracture whatever, when they become the subject of intended movement associated with emotion or desire show incontestable evidence of hypertonia just as hypertonic muscles are seen as the result of resistance movements There is therefore overaction adductor attitudes, flexor overaction at the elbows, and all the phenomena which accompany innervation both as to gait attitude, facial expression etc This condition of intentional hypertonia is unaccompanied by any evidence, so far as the reflex or the existence of plantar extension is concerned of involvement of the pyramidal tract except in one case When the patient is at rest or when volition intention or emotion are not in force the patient s arms and legs are flaccid hypotonic and relaxed Schwab has seen five such cases, four patients showed some degree of mental deficiency

Medical Record, New York

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75 Personality and Behavior in Siberian Prisons L P Clark New York—p 1057
76 Anterior Poliomyelitis Principles of Treatment R Whitman New York—p 1062
77 Treatment of Infantile Paralysis H W Wright San Francisco—p 1064
78 After Care of Infantile Paralysis Cases O H Bartine New York—p 1066
79 Fallacy of Intestinal Stasis M J Synnott, Montclair, N J—p 1068
80 Present Treatment of Diabetes Mellitus H M Moses Brooklyn—p 1069
81 Role Played by Fear in Diseases of Stomach and Intestines L H Levy New Haven Conn—p 1072
82 Prevention and Treatment of Weak Feet Occurring During Pregnancy and Puerperium J Grossman New York—p 1074
83 Report on Old Case of Parenchymatous Nephritis F M Johnson Boston—p 1075

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84 Use of Constant Dry Heat in Inoperable Peripheral Gangrene W G Thompson New York—p 1103
85 Medical Corps of Army as Career L P Williamson U S Army—p 1106
86 Retrospections Medical and Otherwise A D Rockwell, Flushing—p 1109
87 Extra Uterine Pregnancy E M Stanton Schenectady—p 1112
88 Heliophobia F Robbins New York—p 1114
89 Tonsillectomy Under Novocain P M Lewis New York—p 1116
90 Tuberculin Dispensary R C Newton Montclair N J—p 1118
91 Operations on Uterus and Vagina without an Anesthetic H A Wade Brooklyn—p 1119
92 Bacterial Etiology of Poison Oak Dermatitis (Rhus Poisoning) L C Frost Los Angeles—p 1121

Nebraska State Medical Journal, Norfolk

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93 Injuries of Head Report of Cases F A Long Madison—p 167
94 Some Conclusions from One Hundred Operations for Cholecystitis C H Newell Omaha—p 169
95 Immediate Repair of Perineal Lacerations B R McGrath Grand Island—p 174
96 Methods Which May Be Employed to Avoid Open Operations for Fractures J P Lord Omaha—p 176
97 Starvation Treatment of Diabetes Report of Cases R W Bliss Omaha—p 178
98 Therapeutic Artificial Pneumothorax in Treatment of Tuberculosis F M Conlin Omaha—p 184

New York Medical Journal

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99 Present Management of Poliomyelitis Epidemic in New York City F Tilney and J C Rushmore New York—p 1221
100 Points in Diagnosis and Treatment of Poliomyelitis B Sachs New York—p 1225
101 South American Travel Notes A Schachner Louisville, Ky—p 1231
102 Surgical Treatment of Goiter J W Vaughan Detroit—p 1235
103 Alleged Passing of Hypophosphites T J Mays Philadelphia—p 1239
104 Some Recent Tendencies in Surgical Literature W F Fowler Rochester—p 1241
105 Case of Leprosy in Connecticut J E Lane New Haven—p 1244

Northwest Medicine, Seattle

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106 Diagnosis of Kidney Disease H J Whitacre Tacoma—p 387
107 *Conception of Urethral Stricture that Admits of Scientific Treatment G S Peterkin Seattle—p 394
108 Vesical Fistula G S Whiteside Portland Ore—p 398
109 Pyonephritis Complicating Pregnancy E G Braddock Lewiston, Ida—p 400
110 Sources of Pyuria A E MacKay, Portland Ore—p 402
111 Kidney Calculus in Child of Seven Years H G Lazelle Seattle—p 403
112 Diagnosis and Treatment of Chronic Gonorrhea F A Goeltz Salt Lake City—p 405
113 Two Cases of Epidemic Cerebrospinal Meningitis Occurring in Portland W House Portland, Ore—p 408

107 **Urethral Stricture**—A stricture, Peterkin says signifies swelling infiltration not cicatricial contraction What is the most common, yet most efficient factor, in reducing swelling, infiltration? Hot water! Every physician and surgeon, therefore, should remember the efficiency of hot water in treating stricture mechanically, also they should remember the stopcock, the compressor urethrae, is a voluntary muscle and teach the patient to irrigate the entire urethra under hydrostatic pressure, not with a catheter, but with a glass nozzle doing this at home, using a very hot mild antiseptic solution three or four times daily between mechanical treat-

ments and practically discontinuing the same after the mechanical treatments have ceased Then note the quick subsidence of the infiltration, and of the symptoms, and the increased percentage of cures For strictures that have become strictures and are strictures requiring no delineation, no science, in diagnosis, the remedy is operative

Psychiatric Bulletin, Utica, N Y

October 1916 IX No 4

114 *Clinical and Anatomic Features in Alzheimer s Disease and Related Conditions C I Lambert White Plains—p 413
115 *Occurrence of Acetone in Urine of Acutely Insane G W Mills and R G Wearne Central Islip—p 433
116 Mental Regression Its Conception and Types F L Wells, Waverley Mass—p 445

114 **Alzheimer's Disease**—Lambert cites two cases, both men of 49, without significant heredity or make-up, but with a history of alcoholism In each there developed slowly and insidiously without attacks of unconsciousness or convulsions, a most profound dementia The onset was first evident in inattention, indifference and absentmindedness, later became more manifest in declining efficiency, progressive impairment of memory, retention, grasp and poverty of thought, followed by aimless restless, foolish behavior and increasing mental dilapidation which went on apace toward an apathetic dementia, incapacity to comprehend, to talk to walk and a bedfast state in which the patient muttered and mumbled and fussed and fumbled and pulled at his bedding wet and soiled himself, chewed a little and gulped what was put in his mouth and vegetated for a time and died like a decerebrated animal Among the more striking symptoms in these cases were the outstanding symptoms of agnosia aphasia and apraxia In two other patients one 61 and the other 71, there likewise developed gradually, without cerebral irritation, apoplexy or paralytic phenomena, evidences of deterioration In addition to the diffuse nonsystemic symptoms of dementia there stood out in the first case a diffuse aphasic or paraphasic disorder, largely of a sensory type at first, later of both a sensory and motor transcortical type There was little motor or ideatory apraxia in this case In the second case there was also considerable paraphasia and jargonaphasia but more prominent were the symptoms of motor, more particularly ideatory apraxia There was absence of objective paralyses, although in the second case a right hemianopsia was suspected and anatomically properly so

115 **Acetone in Urine of Acutely Insane**—In necropsy material Mills and Wearne noted the regular appearance of casts and albumin prior to death, and postmortem they found various kidney changes, which, at least in some cases, seemed the most important pathologic finding It, therefore, seemed that a kidney irritant or toxin was at work The authors then found that the urine in these acute cases often contained acetone, that the acetone would appear before the casts and albumin Treating these cases from a nephritic viewpoint was entirely unsuccessful but from a gastro-intestinal auto-intoxication standpoint they had very fair success The appearance of acetone indicates a metabolic disorder, probably dependent on a gastro-intestinal condition, and also an inherent personal fault Its appearance shows that the toxemia is reaching a stage when ill effects on the kidneys may be expected These will be shown simultaneously, or, in a few days, by the appearance of casts and albumin, and there is apparently some danger of the kidney change becoming chronic Patients treated along expectant and symptomatic lines died Treatment to improve renal functions including diuretics, stimulants, baths, packs cathartics, rectal irrigations, hypodermoclysis, etc, failed Alkaline treatment, such as the administration of large amounts of soda, also gave very little benefit The treatment eventually resolved itself into free catharsis, free washings of the lower bowel by enemas or, preferably saline irrigations, forcing fluids as much as possible, *forced feeding* with skim milk and cereals, usually oatmeal gruel and addition of either cane sugar or lactose, use of intestinal antiseptics, preferably either thymol or betanaphthol, stimulation where necessary, sponging for temperature and other routine measures as in any serious illness

Tennessee State Medical Association Journal, Nashville

December 1916 IX No 8

117 Uterine Hemorrhage F D Smythe Memphis—p 307
118 Tuberculosis of Kidney W C Dixon, Nashville—p 311
119 *Significance and Mismanagement of Acute Abdominal Pain L L Sheddan, Knoxville—p 314
120 *Intestinal Obstruction W M McCabe Nashville—p 320
121 *Menstrual Disorders L E Burch Nashville—p 323
122 Treatment of Eclampsia J T Altman Nashville—p 327
123 Birth Control H Lockhart, Coalmont—p 331
124 Quinin Intravenously in Treatment of Chronic Malaria Report of Case J Witherspoon Nashville—p 334

119 and 120 Abstracted in The Journal, April 22, 1916, pp 1346 and 1348

121 Abstracted in The Journal, April 22, 1916, p 1347

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Medical Journal, London

December 9 1916 II No 2919

1 Work of National Medical Research Committee C Allbutt—p 785
2 *Case of Arsenic Cancer J Bland Sutton—p 788
3 *Cases of Gunshot Wounds of Blood Vessels from Mesopotamia O W J Wynne, D T Richardson and G E Dodson—p 789
4 Case of Traumatic Aneurysm Dealt with by Obliterative Arteriorrhaphy J C Jefferson—p 794
5 *One Hundred and Seventy Cases Operated Under Spinal Anesthesia T A Weston—p 794
6 Case of Comminuted Fracture of Humerus Produced by Muscular Action N H Mummery and P I Giuseppi—p 795
7 *Projectile Injuries of Blood Vessels W Pearson—p 796
8 Physiologic Work of Ivan Petrovich Pavlov W M Bayliss—p 799

2 **Arsenic Cancer**—A woman aged 60 came under Bland-Sutton's care with a large ulcer just below the left knee, it had the usual signs of cancer of the skin In shape and position the ulcer resembled a patch of psoriasis The scaly, onion-like patches peculiar to this disease were present on her legs and elbows She had suffered from psoriasis for thirty years and during this period had taken arsenic more or less continuously In 1913 a pimple appeared at the lower border of a scaly patch on the skin, just below the patella This pimple gradually became an ulcer that was frequently scraped and cauterized In spite of this treatment it increased in size, in 1916 it had become a typical cancerous ulcer as big as the palm There were enlarged lymph nodes in the groin August 23, Bland-Sutton removed the lymph nodes from the groin, ligatured the common femoral artery resected the upper 2 inches of the internal saphena vein at its junction with the femoral vein and amputated the limb through the middle of the thigh Tissues from the edges of the ulcer had the microscopic characters of squamous celled cancer but there were no cell nests The big lymph nodes from the groin were examined and found free from cancer but they showed the changes common to nodes enlarged from septic infection The patient made a quick and satisfactory recovery after the amputation

3 **Gunshot Wounds of Blood Vessels**—Treatment of a series of twenty-one cases has suggested to the authors the conclusion that bullet wounds of large blood vessels coming under observation on an average four weeks from the date of injury most frequently show signs of either diffuse false aneurysm or arteriovenous aneurysm, and that the former and more urgent cases can be treated successfully by a local operation at this period, provided that the circulation above can be controlled efficiently either by tourniquet, digital compression, or, in the case of the upper extremity, by ligature of the main artery at some point above the lesion Fifty per cent of arteriovenous aneurysms benefit, temporarily at any rate, by delay in operative treatment, considering the known results of operation in these cases Where the advent of sepsis is suspected in cases of diffuse false aneurysm free drainage after operation is unattended by danger of secondary hemorrhage Efficient collateral circulation is established in most cases of destructive gunshot arterial lacerations within a month of the date of injury

5 **Operations Under Spinal Anesthesia**—For operations on the abdomen and lower limbs the lateral posture was used for the injection, for perineal, the sitting-up posture The height of anesthesia reached in each case was carefully noted and found to be usually the nipple line, although in some cases it extended a little higher The average time at which anesthesia was complete was found to be three and a quarter minutes, the moment of injection being carefully recorded in each case The duration of the anesthesia was found to be ample for the cases under consideration, lasting usually fifty to sixty minutes, though in some cases longer Three complete failures to obtain anesthesia occurred, but in each of these Weston believes that he was to blame for faulty technic, as they were all early cases No failures occurred in the later cases No serious untoward effects were observed either during or after the injections A few patients experienced slight dyspnea during abdominal operations if the anesthesia reached above the nipple line, but this disappeared rapidly on slightly elevating the shoulders and head Slight headache occurred in one or two patients after operation, but was immediately abolished by the administration of phenacetin and caffein Weston says that if the patient be moved with extreme care no headache occurs In each case Barker s stovain glucose solution was used

7 **Projectile Injuries of Blood Vessels**—During the past nine months Pearson has operated on fourteen patients for lesions of the blood vessels All cases of aneurysm and a case of varicose aneurysm were treated by intrasaccular operation In one case (popliteal aneurysm) restorative endoaneurysmorrhaphy was performed in the others “transsaccular ligation’ was necessary, although in three of them suturing operations were at first attempted, and in one of these restorative endo-aneurysmorrhaphy was actually completed before it was recognized that the case was complicated by the addition of aneurysmal varix There was no mortality in the series, and in every case the vascular lesion was cured

Edinburgh Medical Journal

December 1916 XVII No 6

9 *Histology of Disseminated Sclerosis J W Dawson—p 377
10 *Marked Spastic Paraplegia of Fifteen Years Duration Death Due to Diabetes Mellitus and Boils B Bramwell and J W Dawson—p 411
11 Action of Veratrone in Treatment of Eclampsia, Report of Three Cases W F T Haultain—p 416

9 **Histology of Disseminated Sclerosis**—The tentative nature of the explanations on many points, and the fact that no uniform conception of the process can be offered have been taken into account in formulating the following conclusions drawn by Dawson The process underlying disseminated sclerosis is a subacute disseminated encephalomyelitis, which terminates in areas of actual and complete sclerosis There are no sufficient grounds for distinguishing between primary and secondary forms of disseminated sclerosis There is much to favor the view that true disseminated sclerosis is due to a specific morbid agent which calls forth a clearly defined clinical and anatomic picture other disseminated affections of the central nervous system, such as disseminated arteriosclerotic syphilitic, endarteritic and acute encephalomyelitic processes may all produce a symptom complex very similar to that of disseminated sclerosis, but they, in their further course differ from the later in the characteristic remissions and relapses, and further, acute infective diseases, trauma, chill, shock and all known exogenous factors may act as exciting factors in lowering the resistance of the organism, and thus allowing the final determining factor to operate

The causal agent is of the nature of a soluble toxin and it is conveyed to the nervous tissues probably by the blood channel rather than by the lymphatics The restriction and distribution of the pathologic process is in some way related to the selective action of the toxin on certain areas of the blood supply, or unknown factors determine an irregularly distributed paralytic dilatation, with an increased filtration through the vessel walls Remissions and relapses necessitate the assumption of the latent presence of the morbid agent in the body, or, if this is an autogenous toxin, either its intermittent evolution or its accumulation from deficient elimination

It is suggested that fleeting early motor paralyses and psychic symptoms may be related to the presence of areas in association paths, that remission of these symptoms is possibly due to the linking up of other association paths, or their compensation by the opening up of new paths, and further that the variation of the symptoms in all stages of the disease emphasizes the importance of the mental factor in the symptomatology that the cortical areas share in the production of psychical symptoms that volitional tremor, alterations in speech, and nystagmus may be the result of sclerosis spreading in form the several ventricles and the aqueduct, that as the lesions are disseminated through the cerebrospinal axis the disturbances are therefore, especially liable to affect systems which are extensive The areolar zones, the true areolar areas, and the perivascular sieve-like areas are secondary processes, the result and not the cause of the sclerotic areas Sites of predilection are probably related (1) to the vessels and (2) to areas in which much glia is normally present

10 **Spastic Paraplegia, Death Due to Diabetes Mellitus and Boils**—The case reported by Bramwell was carefully observed for seven years, most marked spastic paraplegia was the only condition present The patient was again and again examined in the hope of detecting some of the characteristic symptoms of disseminated sclerosis Such symptoms never developed, but postmortem examination showed the characteristic lesions in the spinal cord of disseminated sclerosis The amount of sugar passed per diem varied from *700 to 1 300* grains The patient died with symptoms of acetone poisoning

Indian Journal of Medical Research, Calcutta

January 1916 III No 3

12 Lesions of Biliary Passages of Rabbits Dying After Repeated Intravenous Injections of Living Vibrios E D W Greig—p 397
13 Alteration in Serologic and Morphologic Characters of Strain of Vibrio E D W Greig—p 442
14 Revision of Nomenclature of Indian Anophelini S R Christophers—p 454
15 Indian Tree Hole Breeding Anopheles A Barianensis James A (Coelodiazesis Plumbeus) Haliday S R Christophers—p 489
16 Male Generative Organs of Some Indian Mosquitoes B Prashad—p 497
17 Halteres of Mosquito and Their Function B Prashad—p 503
18 Specific Differences in Genus Musca P R Awati—p 510
19 Life History of Hematobia Sanguisugens Austen J L Mitter—p 530
20 Life History of Bdellolarynx Sanguinolentus Austen J L Mitter—p 538
21 Some Centipedes and Their Venom J W Cornwall—p 541

Indian Medical Gazette, Calcutta

November 1916 LI No 10

22 Some Recent Advances in Cardiology W S Willmore—p 401
23 Supernumerary Fingers and Toes J W Cornwall—p 407
24 Cataract Operation Old and New W Corry and H Shanker—p 408
25 Some Experiences in Depot Hospital H L Treston—p 413
26 Septic Shell Wounds A N Bose—p 415
27 Bullets Extracted from Sepoys in France and Mesopotamia N W Mackworth—p 420
28 Case of Hypertrophy of Male Breast A B deCastro—p 420

Journal of Tropical Medicine and Hygiene, London

December 1 1916 XIX No 23

29 Need of Organized Application of Tropical Hygiene to Prevent Excessive Wastage from Disease in Armies in East W J Simpson—p 273

Lancet, London

December 9 1916 II No 4867

30 Injuries of War A M Sheild—p 967 To be concluded
31 *Agglutinating Properties of Certain Serums against B Typhosus and B Enteritidis Gaertner (Delepine, 7160) T T O Farrell—p 970
32 Chronic Gonorrhea Cured by Electrolysis C Russ—p 977
33 Case of Bullet in Sphenoidal Sinuses, Removal Through Left Nostril H E Harris—p 978
34 Retained Placenta in Rudimentary Horn of Uterus M C S Lawrence—p 979
35 Case of Congenital Absence of Nails B O Neill—p 979

31 **Agglutinating Tests in B Typhosus**—Out of the 270 serums of inoculated men examined by O'Farrell, 87 1 per cent gave positive agglutination for *B typhosus* The serums of men inoculated twice give more positive reactions than men inoculated only once The presence of syphilis (as indicated by a positive Wassermann) does not affect the agglutinating power of a serum for *B typhosus* Out of 366 serums, consisting of both inoculated and noninoculated men who either had or were suspected of having syphilis, 19 6 per cent agglutinate *B enteritidis* Gaertner (Delepine, 7160) when a 1 in 25 dilution is used A much smaller percentage may agglutinate this bacillus up to a 1 in 250 dilution None of these serums were found to affect 7160 in a higher dilution Out of thirteen cases with a previous history of typhoid only three agglutinated 7160 These cases had had typhoid eight, ten and eighteen years, respectively, previous to the date of examination The ten cases not agglutinating 7160 had histories of typhoid four months to twenty-two years previously Any of the serums clumping 7160 which were examined for coagglutinins for paratyphosus A or B proved negative

35 **Congenital Absence of Nails**—O Neill's patient had no nails at all on the thumbs or fingers or great toes and only tiny fragments of nails on some of the other toes The nail beds were present on all the digits of the hands and feet and the fragments of nails found on some of the toes were placed round the edges of the nail beds or on the nail beds themselves The thumbs fingers and great toes had a hooded appearance at the extremities In the fingers and thumbs the nail bed had an upper paler part and a lower shining and more vascular part the latter corresponding to the lunette in the nail of a normal digit Two younger sisters aged 25 and 6 years, respectively were similarly afflicted The mother had the operation of avulsion performed on the nail of one of her great toes during the time when she was carrying the subject of this note

Medical Journal of Australia, Sydney

November 11 1916 II No 20

36 Administrative Control of Pulmonary Tuberculosis in Australia J K Patrick—p 401
37 Insecticidal Fumigation in Ships with Special Reference to Use of Hydrocyanic Acid and to Prevention of Ship Borne Yellow Fever C E Corlette—p 405
38 Thyroid Mechanism and Its Relation to Endemic and Thyrotoxic Goiter S Pern—p 409
39 Large Ovarian Cyst G P O Day—p 410

November 18 1916 II No 21

40 Poliomyelitis Epidemiology Pathology and Symptomatology H D Stephens—p 423
41 Poliomyelitis Diagnosis Prognosis Prophylaxis and Medical Treatment A J Wood—p 426
42 Poliomyelitis Surgical Treatment W K Hughes—p 429
43 Case of Acute Hydrocephalus in Cerebrospinal Meningitis R O Douglas—p 430

Annales de Medecine, Paris

September October 1916 III No 5 pp 461 566

44 Reflex Vasomotor and Temperature Disturbances with Paralysis and Contractures (Des troubles vaso moteurs et thermiques dans les paralysies et les contractures d ordre reflexe) J Babinski J Froment and J Heitz—p 461
45 The Syndrome with Total Color Blindness (Le syndrome achromatopsie totale) M Landolt—p 498
46 Technic for and Interpre ation of Agglutination Tests (Remarques sur la technique de l agglutination des bacilles typhiques et paratyphiques) P P Levy and P Vallery Radot—p 504 (Absence ou diminution momentanee de l agglutinabilite de certains bacilles typhiques ou paratyphiques apres leur isolement de l organisme) Id—p 515
47 War Psychoneuroses G Roussy and J Lhermitte—p 525

Archives des Maladies de l'Appareil Digestif, etc , Paris

1916 IX No 2 pp 61 108

48 *Glycuronuria with Disease of the Liver* (La glycuronurie dans les affections hepatiques) H Roger—p 61
49 *Cancer of the Esophagus and Cardia (Quelques notions cliniques sur une statistique de 172 cas de cancers de l oesophage et du cardia) I de M Sarmento—p 71
50 *Spasm Closing Gastro Enterostomy (Sur l occlusion spasmodique de la bouche anastomotique comme cause d insucces de la gastro entérostomie) L Urrutia—p 84
51 *Cure of a Case of Hemorrhagic Rectocolitis A Mathieu and A S Alivisatos—p 88.
52 Vomiting Attacks in Tabes Outside of Crises (Vomissements par reaction colique ou par fuim nauseeuse survenant en dehors des grandes crises gastriques typiques chez une malade atteinte de tabes dorsal Hematemese au cours d'une crise tabetique) A Mathieu and A S Alivisatos—p 92
53 *Irresistible Desire to Sleep after Eating (La narcolepsie digestive) R Goiffon—p 95

48 **Glycuronuria with Liver Disease**—Roger enumerates the various factors liable to influence alimentary glycosuria, the greater or less absorbing power of the bowel, the eliminating power of the kidneys, and the power of sugar consumption by the tissues Induced alimentary glycosuria is thus unreliable as a test, but we have learned that sugar and glycogen aid in defending the organism against poisons In normal conditions there is enough glycogen on hand to combine with the poisons into compounds—conjugated glycuronic acids—which are comparatively harmless and are readily eliminated by the kidneys In normal conditions the urine contains about 0 04 gm glycuronic compounds to the liter Most of them are conjugated with phenol and indol The glycuronuria subsides during starvation along with the glycogen content of the liver On a milk diet it also subsides, at the same time there is less putrefaction in the intestines After a dose of 0 5 to 1 gm of camphor before starchy or sweetened food, intense glycuronuria follows if the liver is functioning properly With the Tollens and Rorive reaction it is easy to estimate and follow the proportions of glycuronic acid in the urine He gives the exact technic saying that the naphthoresorcin method is so sensitive that the reaction is distinct even with 0 002 gm in a liter of water, and shows up variations even of 0 01 per thousand

Among the clinical experiences related are the absolutely concordant findings with cirrhosis of the liver, and in 32 cases of jaundice from retention of bile Chronic nephritis and cerebral hemorrhage do not seem to modify the glycuronuria In 14 cases of heart disease, the glycuronuria was far below normal in the 7 severe cases with asystole In 3 other cases of asystole the glycuronuria was normal in one and this patient recovered The other 2 had no appreciable glycuronuria and both died Of the 40 pregnant women examined 65 per cent of the 20 with stomach trouble or albuminuria with edema showed complete absence of glycuronuria, 30 per cent had very little and only 5 per cent had very pronounced glycuronuria Of the 20 healthy women, all had a little glycuronuria and it was quite pronounced in 70 per cent These figures are startling as they show that the liver is suffering more or less in even mild pathologic cases They emphasize the instructive importance of tests to determine the conditions in regard to elimination of glycuronic acid as a routine procedure in pregnancy, when there is anything to suggest abnormal conditions The findings in pneumonia are suggestive also In short Roger declares, glycuronuria is to date the most practical index of the protecting power of the liver and the technic for gaging it is comparatively simple and is now ready to be adopted into general practice

The most sensitive method, albeit a little more complicated, is to add o 5 c c of urine in the centrifuge tube 0 2 of ammonia water (*ammoniaque*) and then 2 c c of the commercial solution of lead sub acetate The tube is filled up with distilled water containing 1 per cent ammonia water After moderate centrifuging the fluid is decanted and washed twice with the ammoniacal solution centrifuging each time Filtering may answer instead of centrifuging but it takes very much longer The precipitate thus purified is mixed with 5 c c distilled water and the whitish mass resulting is poured into a test tube and after this 0 5 c c of a 1 per cent alcoholic solution of naphtho resorcin The rinsings of the centrifuge tube with 5 c c pure hydrochloric acid e added and the test tube is placed in the boiling water bath for fifteen minutes It is then cooled in running water and agitated with 10 c c ether The tint is yellow or slightly tends to pink if there is no glycuronic acid present in the urine With a positive reaction, the ether turns violet the tint more or less pronounced This method i particularly instructive when the urine contains quantities of reducing substances This is readily recognized by heating with a little Fehling s solution The tint then becomes yellow brown or greenish

49 **Cancer of the Esophagus**—Sarmento relates that of the 716 cases of cancer in Mathieu's service, 1910-1915 fully 20 per cent were in the esophagus or cardia, and one in every 2 36 were in the middle third of the esophagus Of the total 172 cases, all but twenty-five of the patients were men The proportion of cancer cases was 716 to 8,397 patients in the

service during the six years in question The Roentgen findings in some typical cases are reproduced Progressive difficulty in swallowing is the most important and most constant sign of cancer of the esophagus The survival was never longer than twelve months after dysphagia appeared

50 **Spasmodic Closure of a Gastro-Enterostomy**—The gastro-enterostomy proved a success only part of the time At intervals it seemed to close up completely The operation had been done and the pylorus shut off to aid in curing an ulcer at the pylorus Zweig has reported a demonstrative case of the kind, cured by a sedative to relax the spasm In the case here reported by Urrutia the gastro-enterostomy closed up by the end of the first week, and the man vomited everything taken into the stomach A secondary operation was contemplated and the stomach was rinsed out morning and evening Sometimes the stomach was found empty, at other times it contained all that had been ingested since the last lavage or vomiting attack After failure of papaverin to relieve, belladonna three times a day, half an hour before meals arrested the spasms completely, and in the first three weeks of freedom from vomiting the man regained over 15 pounds Zweig encountered seven cases of this kind in twenty-seven patients after gastro enterostomy, but this is the first in Urrutia's sixty gastro-enterostomies followed to date In a number of them it was noticed during the operation that the stomach contracted spasmodically more than once while it was exposed

51 **Treatment of Hemorrhagic Rectocolitis**—There did not seem to be ulceration in the case reported, but the condition had grown so grave in the course of seventeen months that a fatal outcome seemed inevitable and cancer more than probable Persevering local treatment for seven months finally cured the patient, and disproved the assumption of malignant disease The treatment was by injection into the rectum of bismuth subgallate and zinc oxid The patient was a woman of 43 and the rebellious bloody diarrhea had induced much emaciation Only brief if any benefit had been derived from dietetic measures

53 **Imperious Desire to Sleep After Eating**—Narcolepsy is the term used by Gelineau to express a sudden imperious desire to sleep for a few moments or minutes, recurring more or less regularly Lhermite presented a report on this subject at a neurologic congress in 1910, with full bibliography Gelineau explained the narcolepsy as an autonomous neurosis, but others regard it merely as a symptom in various intoxications, etc Goiffon here emphasizes its import as a sign of indigestion He publishes a number of typical cases of this acute somnolency after eating even a small and light meal The desire to sleep comes on so suddenly and irresistibly that it constitutes an actual danger In one of his cases the man was chopping wood, and the irresistible desire to sleep came on him with such sudden force that the ax dropping from his relaxed hand, cut his foot seriously The slumber is actual sleep, not an epileptiform 'absence It lasts only a few minutes, fifteen is the average and on waking the persons feel refreshed There was always a history of stomach troubles in these cases but they were of a mild type mostly sensory motor disturbances with deficient gastric secretion Only four of his patients of this type had hyperchlorhydria and tardy pains All were thin and inclined to asthenia, but the correction of the abnormal conditions in the stomach supplemented with a little psychotherapy cured in every case In some of Gelineau s cases emotional stress brought on the narcolepsy but in Goiffon s cases the dyspepsia was evidently the exciting cause In one case a man with hyperchlorhydria had this sudden narcolepsy occur for the first time, it lasted for twenty minutes and when he roused he vomited quantities of blood, his first hematemesis

Archives des Maladies du Cœur, etc, Paris

November 1916 IX No 11 pp 473 520

54 Case of Pseudoleukemic Splenic Anemia of Malarial Origin G Paisseau and H Lemaire—p 473
55 The Manifold Manifestations from the Oculocardiac Reflex (Dissociation sino auriculo ventriculaire extrasystoles et fibrillation auriculaire provoquees par la compression oculaire Action favorisante de l atropine) M Petzetakis—p 477

Bulletin de l'Académie de Médecine, Paris

November 28 1916 LXXVI No 47 pp 403 436

56 The Predisposition to Joint Troubles as a Diathesis (Qu est ce que l arthritisme? Avec considerations sur les diatheses) Fernet—p 406
57 Extraction of Projectile in the Mediastinum or Lung R Le Fort—p 424 S Mercade—p 430
58 Bacteriologic Study of Dysentery as Modified by the War (Contribution a l etude de la dysenterie Nouveaux bacilles dysenteriques pathogenes pour les animaux d experience) F d Herelle—p 425
59 Exophthalmic Goiter and the War (La maladie de Basedow et la guerre) L Berard—p 428
60 Experimental Generalized Vaccinia in the Heifer and Monkey (La vaccine generalisee experimentale chez la genisse et chez le singe) L Camus—p 433

Paris Medical

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61 *Sorting Field Hospital (De l ambulance de triage) A. Mignon—p 453
62 Simple Device for Immobilizing Fractured Humerus (Traitement des fractures de la diaphyse humerale) R Gregoire—p 456
63 *Influence of Quantity and Activity of Vaccine on the Speed of Immunization L Camus—p 460
64 Trench Fever (Fievre des tranchees) R Morichau Beauchan—p 463

61 **Sorting Station**—Mignon discusses the arguments for and against having a special field hospital to classify and direct to specialist centers the wounded as they are brought in His final conclusion is that such an institution is not needed during periods of comparative calm, and it would not be useful even when the wounded are being brought to it in large numbers unless there are plenty of beds available, so the severely wounded could be kept and only the minor cases sifted out and sent to the rear

63 **To Hasten and Intensify Vaccine Immunization**—Camus has found that given a vaccine of a known strength and using exactly the same quantities we can count with precision that the results will be the same Changes in the quantity and in the activity of the virus bring differences in the vaccinal response He experimented with rabbits and tested the immunity by intravenous injection In ordinary times it is immaterial whether five days or ten days or longer are required to ensure immunization His experiments teach that when it is important to shorten the interval, the vaccine should be exceptionally active and it might be inoculated at several points He urges others to make practical tests of this in vaccinating children, comparing the interval before immunity to a second vaccination in children inoculated only once and those inoculated at six points

Presse Medicale, Paris

November 30 1916 XXII No 66 pp 537 544

65 Technic of the Carrel Treatment of Infected Wounds P Desfosses—p 537
66 *Soap in Treatment of War Wounds (Traitement des plaies de guerre par le savon) M Ratynski—p 540

December 4 No 67 pp 545 560

67 *Diagnosis of Death on the Firing Line (Le diagnostic de la mort sur la ligne de feu) A Satre Title page
68 *Suprarenal Insufficiency in Malaria Paisseau and Lemaire—p 545
69 *The Stimulating Phase of Atropin Petzetakis—p 549
70 Hemorrhage from Wounds of the Gluteal Artery (Interventions pour hemorrhagies de l artere fessiere) H Bousquet—p 551
71 Simple Fracture below War Wounds Involving Only Soft Parts (Fracture fermee sous jacente a une blessure de guerre n interessant que les parties molles) Monprofit and L Courty—p 553

66 **Soap in Treatment of War Wounds**—Ratynski deplores that more use is not made of soap in cleansing wounds and in local treatment afterward His experience with it has been remarkably favorable as he describes in detail He uses 25 gm castile soap to the liter of water, or doubles this strength for the cleansing procedures For local treatment he applies it in a 20 per cent solution in which the compresses are dipped In his 1,500 dressings of the kind the results were at least equal to those of any other methods of treatment while the invariable absence of pain is a special advantage of the soap treatment

67 **Diagnosis of Death at the Dressing Station**—Satre relates that in many of the wounded and shell-shock cases

the men owe their lives to the persistence with which the physician kept up artificial respiration or other means to start the vital functions anew when the man wounded in the head or spinal cord or asphyxiated by gases seemed dead beyond redemption In some cases resuscitation was realized after four or even six hours of the continuous application of such measures Subcutaneous injection of 10 c c of a 20 per cent solution of fluorescein can be done without interrupting the artificial respiration or rhythmic traction of the tongue [The fluorescein has to be dissolved in a dilute alkaline solution] If there is still the slightest circulation, the stain diffuses readily and is particularly evident in the conjunctiva 'The eyeball looks like an emerald in its orbit" This encourages all concerned to keep up the life-saving measures, when without it the aids are inclined to think that not only the efforts are being wasted but that the dead body is being profaned It is better to treat a dead man as if there was still life than to let one live man be left for dead when he might have been saved Another test for certain death is the change of the alkaline reaction of the spleen and liver to an acid reaction This occurs half an hour after death and persists a long time A fine puncture needle is pushed into the spleen or liver, the scrap of visceral pulp thus obtained is spread on blue litmus paper drawing it apart from blood that may come with it The pink tint is very pronounced two hours after death Before this it may be necessary to lift up the scrap of pulp to see the change in tint under it If this characteristic color reaction does not occur within five minutes the spark of life is not extinct The question of real or apparent death comes up again and again on the firing line as men perfectly sound a few minutes before until the explosion of a shell nearby are brought in inanimate, sometimes without any signs of physical injury

68 **Suprarenal Insufficiency in Malaria**—Paisseau and *Lemaire affirm that the suprarenals are responsible for the* attacks of coma the algid phase and the choleriform symptoms in pernicious malaria Necropsy has revealed acute degeneration or acute hemorrhagic disease in the suprarenals in their fatal cases of pernicious malaria The knowledge of this acute or subacute pathologic state of the suprarenals explains many features of the clinical picture of malaria especially the changes in the arterial tension the asthenia, the lumbar and abdominal pains the vomiting and diarrhea The conclusion is inevitable that epinephrin should take its place next to quinin in treatment of severe forms of malaria

69 **The Initial Stimulating Phase of Atropin Action**—Petzetakis reports clinical and experimental data which confirm that atropin has first of all a stimulating action During this initial phase it acts on the vagus nerve and the effect is manifest in extrasystoles and dissociated functioning of sinus and auricle and of the auricle and ventricle Testing the direct and reflex excitability of the vagus at different times reveals the initial period of hyperexcitability of the vagus manifested by the change in the heart rhythm and tendency to irregularity

Correspondenz-Blatt fur Schweizer Aerzte, Basel

December 2 1916 XLVI No 49 pp 1633 1664

72 Spurious Aneurysm from War Wounds Forty Three Cases Rusca—p 1633
73 *Medical Secrecy in Medicolegal Matters (Aerztliche Fragen uber die Schweigepflicht und uber rechtmassige Handlungen im Sinne von Art 192 und Art 25 des Entwurfs zu einem Schweizerischen Strafgesetzbuch) P VonderMuhll—p 1645

73 **Medical Secrecy in Medicolegal Matters**—This article sets forth the views of jurists and of leading physicians as recently enunciated in connection with proposed legislation in Switzerland

Medizinische Klinik, Berlin

October 29 1916 XII No 44 pp 1143 1166

74 *Diagnosis of Typhus (Ueber den augenblicklichen Stand der mikrobiologischen Fleckfieberdiagnose) R Otto—p 1143
75 *Advice and Treatment of Nursing Women (Ueber fehlerhafte Behandlung stillender Mutter) A H Kettner—p 1147
76 Analysis of the Functions of the Hand M Cohn—p 1151
77 Splints Permitting Joint Functioning (Gelenkmobilisationsschienen nach Dr Schede) Neumeister—p 1153

74 **Diagnosis of Typhus**—Otto discusses the present status of the microbiologic differential diagnosis of typhus, saying that microscopic examination of lice from the patient is a simple and reliable measure, as also the Weil-Felix reaction He gives three illustrations of the microscopic findings in a typhus louse, showing the rickettsia in the epithelium of the louse intestine The only absolutely conclusive test is the artificial infection of normal lice, but this is too complicated a procedure for common use The finding of rickettsias in a number of lice is practically adequate for the diagnosis, without waiting for their proliferation Louse smear preparations show up the rickettsias instructively even though we are not certain as to their nature Otto mentions that the Wassermann reaction is sometimes positive in typhus, quite often if active serum is used It is not specific as it occurs with both syphilitic and typhus organs The precipitin reaction was always negative in his experience The Widal agglutination test is instructive only when persistingly negative The Weil-Felix agglutination seems to be conclusive He got agglutination with it at 1 50 up to 1 1600 with typhus patients but never with other patients, even at 1 20

75 **Advice to Nursing Women**—Kettner denounces a number of prevailing prejudices and customs in regard to lactation saying that the woman should merely be advised to live eat and drink what she wishes as in health before she became pregnant only taking a little larger quantities as she is now living for two" At first it may be advisable to take smaller and more frequent meals, but after she is up and about the ordinary meals may be resumed He advocates considerable exercise especially in the open air, light sports and gardening are particularly beneficial and not used often enough by nursing women About 1 5 liter of fluid daily is enough including 1 liter of milk and the rest in mild beer or, better yet, pure water During the summer, water should be *taken more freely not quenching the thirst with gruels, teas,* etc but merely with water This applies to the infants also

He explains that various factors combine to induce constipation after delivery It may be regarded as physiologic and the giving of purgatives only enhances the tendency after the immediate action is over They have the disadvantage further that they attract the blood into the abdomen drawing it away from the breast, where it is needed most The purgative checks or arrests completely the work of milk production in the mammary glands, and this is the opposite of what should be done A dose of castor oil or other purge may turn the scale against the normal development of lactation, especially if the child does not take hold well This is most likely with the first child and midwives and attendants often find it less trouble to give up the attempt to have the child fed at the breast When this occurs at the first childbirth, the woman assumes as a matter of course that she is unable to nurse any of her later children "At the same time" Kettner continues 'these infants who take hold weakly are the very ones that need prolonged breast feeding most imperatively on account of their constitutional weakness, and the war has increased the numbers of such" The bowels can be moved with enemas, but chemical purgation interferes with the development of the mammary gland function which may be under way days before delivery If we have chronic constipation to combat, then the bowels should be regulated with mechanically acting substances rather than the chemical purges Regulating the diet and keeping up these measures usually brings success in time while it does not interfere with lactation

Kettner comments further on the efforts being made at various infants' hospitals etc, to train young girls in the care of babies, saying that many mothers shrink from letting their daughters take the course from fear of contagion This drawback can be overcome by decentralizing the work Instead of large institutions organizing a number of smaller establishments, like the two already at work at Charlottenburg affiliated with the infant welfare stations Each has only a few beds, conditions thus approximating better those in the home and enabling the young girls to be trained practically in the duties of motherhood

In conclusion he insists that not enough care is spent on preparing the nipples for nursing Inappropriate clothing and nonuse render them soft, and they have to be toughened Air and water are what is required The clothing should be loose and light over the breasts, they should be given air baths during the day, and, several times during the day at least on rising and retiring, the whole breast should be doused with cold water If the nipples are particularly tender they can be dabbed in the morning with a little alcohol to harden them and at night a little glycerin or tannin-glycerin applied to make them pliable

At the first sign of smarting, indicating a crack in the nipple, it should be treated with alcohol without the slightest delay, or touched with a silver nitrate pencil Salves and moisture undo what has been accomplished in toughening the nipple The main thing however, is that the child must be allowed to nurse the nipple as before, even if it does hurt If the woman is very sensitive, a nipple cap can be used and in extreme cases a local anesthetic salve may be applied half an hour before the nursing The breast must be emptied as completely as the other Even if phlegmonous mastitis develops, cases are known in which the phlegmon opened into a lacteal gland and the contents were taken by the child in its milk without harm There is no need for such anxiety about the child, when there is mastitis, as is often felt Even if operative treatment is required we should not dress the breast so nursing is impossible or warn the mother against it The dressings should leave the nipple exposed All antiseptics should be scrupulously avoided on account of the infant s sensitive sense of smell The mother should be persuaded to give each breast in turn to the child as usual It generally nurses as if nothing was wrong, or any distaste at first is soon overcome It is remarkable that while stasis hyperemia is directly beneficial in phlegmonous processes elsewhere, stasis of milk has the opposite effect and prompt aggravation ensues In a recent case the surgeon protested against treatment on these principles but finally yielded and applied the dressing so the child could nurse freely Instead of the three weeks' course he had anticipated, the process had completely healed in ten days, lactation had not been interfered with and the weakly child had its natural food throughout and for a long time afterward while the mother s period of suffering had been materially abbreviated

Monatsschrift fur Kinderheilkunde, Berlin

September 18 1916 XIV No 2 pp 123 170

78 *Composition of Gruels Commonly Used in Infant Feeding (Ueber die Zusammensetzung der in der Sauglingsernahrung gebrauchlichen Schleime) H Bratke —p 123

79 *Severe Epidemic of Measles (Klinische Beobachtungen uber Erscheinung und Nachwirkung einer schweren Masernepidemie 1915 in Gottingen) L Lande —p 143

80 Are Infants Born with Much Vernix Caseosa Particularly Liable to Skin Disease Later? (Vernix caseosa und Erythrodermie) K Stolte —p 168

78 Gruels in Infant Feeding—Bratke refers to very thin gruels made by cooking a tablespoonful of oatmeal or other grain in a pint of water filling up the water to this measure as it evaporates He reviews the literature on the subject and describes his own tests and research to determine with precision the various chemical elements in gruel The unmistakable superiority of oatmeal barley or rice gruel seems to be due he thinks to the better utilization of the starch on account of the long cooking If flour soups were cooked as long in comparison, they would be utilized equally well

79 Severe Epidemic of Measles—Lande relates that between April and November last year there were 192 children with measles or its sequels at the Gottingen children s clinic and policlinic All ages were represented, including 4 infants between 3 and 6 months old but over two thirds were between 6 months and 3 years old Ten per cent of the 192 children died and only 27 were not left with some serious complication or sequel Several cases developed in the hospital in infants kept in adjoining cubicles of the L F Meyer box system confirming the view that the box system does not protect against measles Pneumonia and influenza were prevalent during the epidemic, which explains the frequency of complications on the part of the lungs or bronchi Just as in malignant scarlet fever, the fatalities seemed to be due mainly to mixed infection for which the measles prepares an exceptionally favorable field Thirty-one of the children developed some infectious disease or it had been already installed, including whooping cough in 12 cases in 45 there was pneumonia with some other respiratory affection in 6, diarrhea during the prodromal period in 11, throughout the disease in 22 resembling dysentery in an additional 5, and actual dysentery in 2 There was otitis media in 26 and conjunctivitis, sometimes with ulcer of the cornea in 9, hemorrhagic nephritis in 3 meningitis in 3 and sepsis in 13 The measles children in the homes even of the well to do were found in dark unventilated rooms as the popular prejudice demands protection against light and air for measles The exact ear findings in a number of cases early in the disease are given in tabulated form Many of the previously robust children were left pale, languid and irritable by their measles not only their physical but their intellectual development showing impairment Treatment was symptomatic with care for adequate intake of fluid and food, stimulating tepid sponges, warm baths with dash of cool water or mustard bath, stimulating respiration and circulation and preventing the child from sinking into dangerous somnolency, with efforts to ward off mixed infection by air, light and cleanliness In 92 of the 192 cases described the children were first brought to the hospital after the actual measles had run its course In one such case a formerly healthy boy of 3 died six weeks after the measles from a combination of pneumonia pleurisy, pericarditis and nephritis another somewhat younger died seven months after the measles from pneumonia which had run a protracted course and he succumbed to another attack

Munchener medizinische Wochenschrift, Munich

October 31 1916 LXIII No 44 pp 1541 1576

81 *The Arc Light in Phototherapy (Anwendung des Kohlenbogenlichtbades bei primaren und sekundaren Tuberkulosen der Haut und Schleimhaut) L Spitzer —p 1541

82 *Nephritis with Albuminuric Neuroretinitis Eclamptic Amaurosis and Pseudo Uremic Disturbances in Vision (Klinische und funktionelle Studien uber Nephritis II) H Machwitz and M Rosenberg —p 1543

83 Quantitative Determination of Ammonia and Sulphur Compounds in the Urine (Ueber die quantitativen Bestimmungen des Ammoniaks und der Schwefelverbindungen im Harn) R Weiss —p 1547

84 Advantages of Universal Military Training and of Beginning It in the Schools and of Batallions of the Weakly (Eigene Truppenteile fur Tuberkulose und Schwache) Liebe —p 1548

85 Gas Gangrene (Zur Aetiologie und Pathogenese des Gasbrands) H Conradi and R Bieling —p 1561

86 *Para Agglutination in Differential Diagnosis (Ueber die praktische Bedeutung der Paraserumreaktionen) K Baerthlein —p 1564

87 Vaccination Against Typhoid One of the Great Achievements in Recent Medicine (Ueber Typhus und Schutzimpfung) E Schott —p 1567

88 Advantages of Using Typhoid and Cholera Vaccines as Antigens in Deviation of Complement Tests (Die Verwendung von Typhus und Choleraimpfstoffen als Antigene bei der Komplementbindungsreaktion) F Kutscher and Schafer —p 1570

89 *Transmission of Relapsing Fever by Lice (Uebertragung der Rekurrens durch Lause) H Topfer —p 1571

90 Collargol Intravenously in Endocarditis F Klewitz —p 1572

91 *Diagnosis of Gas Gangrene Biermann —p 1573

92 Protecting Sheath after Operating on a Nerve (Zur Frage der Nervenumscheidung mittelst Galalith) S Auerbach —p 1573

93 Simple Splint to Correct Radial Paralysis (Eine einfache Radialis Schiene) F Staffel —p 1574

94 Skeleton Cart to Convey Litter on Track (Verwundetenbeforderung auf den Forderbahnen) M v Hovel —p 1575

95 *Weak Tincture of Soap Wards off Rust from Instruments R Frank —p 1575

81 The Carbon Arc Light in Treatment of Tuberculosis of the Skin and Mucosa—Spitzer reports experiences at Vienna which confirm the statements of A Reyn of Copenhagen in regard to the therapeutic efficacy of exposure to the carbon arc light The lamp used in the Lupus Sanitarium of which he has charge has an 80 ampere current, 60 volts, while Reyn worked only with 7 and 20 ampere currents The stronger light enables a number of patients to be treated at once

Spitzer was amazed at the way in which acute tuberculous ulcerations in the mouth and also the chronic granulating form healed completely in a month or two He had six cases of these types, including one in which the ulcerations had burrowed deep into the tongue, with extensive ulceration in the lips and extreme cachexia The arc light seems to be the sovereign cure for such cases The quartz light gave better results in joint cases He gave daily exposures of an hour each, beginning with fifteen minutes and increasing by fifteen minutes to an hour by the fourth day, and continuing with hour sittings There seems to be a favorable general action in addition to the local effect He aims to induce an erythem with casting off of the epidermis and continuous exfoliation for the first two weeks

82 **Disturbances in Vision with Nephritis**—The conclusions from the clinical and functional study of nephritis here reported are to the effect that albuminuric neuroretinitis seems to be causally related to that disturbance of kidney functioning which leads to azotemia It is very seldom found with acute, diffuse glomerular nephritis, but occurs in about 50 per cent of the cases of malignant sclerosis in the kidneys and also in chronic glomerular nephritis in the stage of insufficiency It is thus shown to be connected with the glomeruli It aids in differentiating early stages of malignant sclerosis of the kidneys from the benign form In chronic cases it indicates a fatal outcome in two years at longest Eclampsic amaurosis is encountered as part of the syndrome of eclampsic uremia The fundus is normal except for the occasionally noted edema of the papilla The prognosis is generally favorable In exceptional cases it may be combined with albuminuric neuroretinitis Lumbar puncture is recommended in treatment

Pseudo-uremic disturbances in the visual apparatus are encountered exclusively with sclerosis of the kidney They are generally briefly transient and are probably traceable to arteriosclerosis and spasm of the cerebral arteries Among his 51 cases of acute diffuse glomerular nephritis two of the men had albuminuric neuroretinitis and although the kidney disease soon retrogressed the neuroretinitis persisted unmodified for the months the men were under observation One of the men had besides acute eclampsic uremia with transient amaurosis Among the total 150 cases of acute diffuse glomerular nephritis 25 of the men died during the uremic stage, in the other 125 cases the men recovered or the disease passed into a chronic phase In 74 in this group there were no signs of azotemia at any time, and no tendency to albuminuric neuroretinitis was ever detected in any in this group, nor in 48 cases of acute and chronic nephritis, 15 of focal nephritis, and 20 of chronic diffuse glomerular nephritis in the second phase but it was pronounced in 15 per cent of the 20 cases in the third stage also in 52 8 per cent of 36 cases of malignant sclerosis of the kidneys

86 **Agglutination of More than One Infectious Germ**—Baerthlein relates instances of para agglutination of the saprophytic germs with the cholera vibrio, typhoid or paratyphoid, Flexner or Y dysentery bacilli in various combinations In one case, for example there was agglutination for cholera at 1 50 for typhoid at 1 200 and for dysentery bacilli at 1 100, with marked agglutination of certain bacteria found which are not usually regarded as pathogenic With a syndrome suggesting dysentery for instance, the only germs that could be cultivated were some resembling the colon bacillus, but there was agglutination with these bacilli at 1 2,000 when tested with Flexner dysentery bacilli In the blood serum there was clumping of the latter and also of the colon bacilli at 1 400 The cure was soon complete under treatment as for dysentery He emphasizes the importance of this para-agglutination as an aid in the diagnosis of typhoid and of dysentery in particular It differs from coagglutination in that the latter is a group reaction from receptors naturally and permanently allied, while with para-agglutination the common receptors are only a transiently acquired property It seems likely that the colon and coccus strains in question adsorb the agglutinating substances produced by the dysentery or other bacilli Baerthlein has been able to induce para-agglutination in vitro with ordinary colon bacilli kept for a time in contact with killed cultures of cholera, typhoid, paratyphoid, or dysentery germs

89 **Relapsing Fever and Lice**—Topfer states that he found the spirochetes of relapsing fever proliferating in lice after they had bitten relapsing-fever patients The spirochetes retained their shape, motility, virulence and staining properties, and no special developmental phases were noted Infection does not seem to be transmitted by the bite of the louse but the spirochetes released by crushing of the louse get into the lesions made by scratching

91 **Diagnosis of Gas Gangrene**—It has been proposed to detect incipient gas gangrene by determining the specific gravity of an excised scrap of muscle Biermann merely strikes the suspected region with the thinnest pincers available, held as a tuning fork is held. When there is accumulated gas even in the depths of the muscle below, there is a dull note like the cracked-pot sound on percussion of a tuberculous cavity in the lung The exact area involved can be outlined in this way The odor of a gas phlegmon is so unmistakable that there is little danger of confusing the findings with a simple emphysema in the skin

95 **To Keep Sharp Instruments from Rusting**—After thorough mechanical cleansing, Frank stands the instrument in a bottle filled with alcohol containing 5 or 10 per cent soap spirit The addition of the tincture of soap prevents rusting An illustration is given of a Pravaz syringe thus kept ready for use It is filled with the fluid, and stood upright over a bottle, the needle projecting nearly to the bottom of the bottle, and the handle held between two nails driven into the wall

Wiener klinische Wochenschrift, Vienna

October 19 1916 XXIX No 42 pp 1321 1352

96 *Typhus (Zur Epidemiologie und Prophylaxe des Fleckfieber) J Fonyo—p 1321 Concluded in No 44 p 1397

97 *The Behavior of the Mononuclear Leukocytes in Malaria A Zweig and J Matko—p 1328

98 *Parenteral Injection of Proteins in Treatment of Eye Affection (Therapeutische Erfahrungen bei parenteraler Injektion von Proteinkorpern und ihren Spaltprodukten in der Augenheilkunde) W Friedlander—p 1329

99 Subretinal Echinococcus Disease Two Cases (Zwei Falle von subretinalem Zystizerkus) F v Herrenschwand—p 1332

100 *Pathology of Chvostek s Sign the Facialis Phenomenon in Connection with the Tonsils E Pulay—p 1334

101 Fistula from Gravity Abscess Persisting for Two Years after Intramuscular Injection of Salvarsan (Eigentümliche Folgen einer intramuskularen Salvarsaninjektion) K Polland—p 1339

96 **Typhus**—This monograph on typhus and lice presents the present sum of our knowledge on the subject Fonyo states that the body louse dies in five days if it is unable to feed on human blood during that time The nits hatch out in two or three days and if the young lice are unable to get blood they also die within five days Consequently closing a lice-infected building for two or three weeks all human beings keeping away from it kills off all the lice young and old The outer covering of the louse is extremely resistant to water, acids and alkali, but its respiratory apparatus is exceptionally sensitive to gases and fumes and they pass thence into the protoplasm This explains the effectual action on them of mercurial salves, as they breathe the fumes Ethereal oils, benzin and 10 or 25 per cent water of ammonia (*Immonial*) have also been found effectual in warding them off or destroying them Lice are so prolific that Leuwenhoek has estimated that the progeny of a single louse can within eight weeks total 5 000 Fonyo emphasizes further that to get rid of vermin all the persons involved must be rid of vermin all at practically the same time If even one person is overlooked, the success of the whole measure is compromised

97 **Behavior of the Mononuclears in Malaria**—Zweig and Matko have been making a comprehensive study of the modifications in the blood picture under the influence of malaria with and without quinin They describe them in detail, calling attention in particular to the segmentation of the mononuclears in the blood stream

98 **Parenteral Injection of Protein in Treatment of Trachoma and Other Eye Diseases**—Friedlander made intra-

gluteal injections of 10 c c milk in forty-two cases of trachoma, all of the severer type The effect was surprisingly good A number of particularly demonstrative cases are reported in detail, as also some of rebellious catarrhal ophthalmia which promptly subsided under one or two of the injections four days apart The interval was never less than forty-eight hours, he always waited for the temperature to return to normal In some of the cases a long previous course of office treatment had given no relief but the earning capacity was restored the day after a single injection at 5 p m One hour afterward the temperature was 36 6 C, at four hours 36 8, at seven hours, 37, at 3 a m 37 5, at 6 a m 36 1, and at 4 p m 36 2 C In conclusion he remarks that the epidemic of trachoma was thus stamped out so promptly and effectually that he has had no opportunity since to apply the method

100 **Significance of the Facialis Phenomenon**—Pulay found Chvostek's sign pronounced in 24 6 per cent of 211 male adults in the hospital in his charge, and, with scarcely any exceptions, in every one of the positive cases there was macroscopic evidence of tonsil disease The intensity of the facialis phenomenon seemed to be proportionate to the severity of the tonsil lesions With a unilateral Chvostek sign the tonsil on that side was the one affected These findings testify that the facialis phenomenon must be regarded as almost invariably a sign pointing to pathologic conditions in one or both tonsils The findings in sixty-three cases are tabulated Pulay adds that the presence of the Chvostek sign early in pulmonary tuberculosis is thus explained, and it suggests that prompt treatment of diseased tonsils may prove an important aid in treatment in all forms of acute and chronic disease Plugs in the tonsils, he continues may not set up any appreciable local inflammation and yet they may be responsible for lassitude, drowsiness, slight rise in temperature and depression—a condition often labeled neurasthenia from ignorance of the tonsil plugs He adds that there was probably unsuspected tonsil disease in the cases of tetany in which the Chvostek sign has been recorded

Policlinico, Rome

November 19 1916 XXIII No 47 pp 1357 1382

102 *Autoserotherapy of Tuberculous Meningitis (Meningite tubercolare Tentativi di cura con reiniezioni sottocute del liquido cefalo rachidiano del paziente) P Tilli —p 1357
103 Triple Vaccines (Vaccinazioni combinate) A Castellani —p 1361
104 Causes of Error in Roentgen Localization of Projectiles in the Tissues. F Ghilarducci —p 1363

November 26 No 48 pp 1383 1414

105 Milk Hygiene (Studi sulla produzione igienica del latte Importanza e controllo della microflora mammaria per la selezione degli animali lattiferi) C Gorini —p 1383
106 Field Hospital Unit (A proposito di un giudizio sulle Unita chirurgiche al campo) B Rossi —p 1387
107 Progressive Hysteric Myoclonus E Trocello —p 1395
108 Aphasia in Typhoid in Children E Iraci —p 1400
109 Neuralgia in the Feet (Nevralgie ai piedi da freddo) A Pagliuso —p 1402

102 **Autoserotherapy in Tuberculous Meningitis**—Tilli reinjected subcutaneously the cerebrospinal fluid, obtained by lumbar puncture, in three cases of tuberculous meningitis in children 3 months, 18 months and 8 years old In the youngest child the disease subsided and there was an interval of health but the meningitis returned ten months later and proved fatal The 8 year old child recovered and has had no return of the trouble during the three years to date but the meningitis had entailed blindness and the head is much enlarged The other child recovered completely under the subcutaneous injections of 1, 2 or 3 c c of the lumbar fluid injected every third day, with tonics and massage In a month the child had improved so it could be taken into the country and the cure was soon complete and has been permanent during the two years to date with no sequels This was the only case in which no bacteriologic tests were made

Brazil-Medico, Rio de Janeiro

November 11 1916 XXX No 46 pp 361 368

110 Pigeon Protozoon Disease (Pesquisas sobre o Hemoproteus columbae) H de B Aragao —p 361 Concluded
111 *Chagas' Disease Involving the Serous Membranes Near the Diaphragm (Polyorrhomenose e cruzi trypanose) P Valladares —p 362

November 18 No 47 pp 369 376

112 *Superficial Fungus Infection (Aleurophora benigna ' N g n sp) O de Magalhaes —p 369

111 **Chagas' Disease with Polyserositis**—Valladares calls attention to the form of Chagas' disease in which the serous membranes adjoining the diaphragm are affected He suggests the term polyorrhomenosis for this involvement of the serosas He also suggests the term cruzi-trypanosis for Chagas' disease which seems to be caused by the *Trypanosoma cruzi* He has encountered several cases of the disease within a year in which the predominating symptoms were those indicating inflammation of one or more of the serous membranes adjoining the diaphragm (Picchini's syndrome) This adds another form of Chagas' disease to those already on record

112 **Fungus Skin Affection**—De Magalhães has recently encountered five cases of a benign superficial affection, confined mainly to the thorax and causing no subjective disturbance except possibly a little pruritus The parasite seems to be of the hyphomycetes family He describes its characteristics saying that it seems to be localized exclusively in the horny layer of the skin

Prakticheskiy Vrach, Petrograd

1916 XV No 28 29 pp 216 227

113 Camphor in Treatment of Disease of the Respiratory Organs L L I Sheiniss —p 217 Continued

No 38 39 pp 276 287

114 Appendicitis in Strangulated Inguinal Hernia (K voprosu ob app v ushtshemlennoi pakhovoi gruizhie) V M Volkovich —p 276 Commenced in No 36, p 264
115 *Acute Articular Rheumatism (Ob ostrom sustavnom revmatizmie) L M Frenkel —p 278 Conclusion

115 **Acute Articular Rheumatism**—Frenkel's experience with patients with acute febrile polyarthritis has convinced him of its remittent or intermittent character This is the reason he explains why salicylic medication has obtained such a vogue in the treatment of the disease As the natural intermission comes on after taking the drug, the attenuation of the symptoms is ascribed to the drug, when in fact the drug is not responsible for it Parallel cases in his clinic passed through parallel phases of exacerbation and remission, whether any salicylate had been given or not In short, he declares in conclusion, the administration of salicylic acid preparations as a specific in the treatment of rheumatic polyarthritis is based on a grievous misapprehension

Russkiy Vrach, Petrograd

1916 XV No 41 pp 961 984

116 Salt in Preservation of Cadavers and Anatomic Preparations II (O primienenii povarennoi soli dlya sokhraneniya trupov i anat preparatov) G H Yusifoff —p 961
117 Heubner's Error in Question of First Dentition (Zabluzhdenie prof Heubner a—Berlin—v voprosie o 1 om proriezivanii zubov u dietei) A O Karnitsky —p 962 Concluded in No 42 p 989
118 Import of Fusiform Bacilli in Pathology of Scarlet Fever (Znachenie veretenoobraznikh bakterii v patologii skarlatini) V N Klimenko —p 966
119 War Wounds of the Chest (Pronikaiushtshiva ognest raneniya grudnoi klietki) S K Solovieff and G K Videman —p 969
120 Mode of Spread and Prophylaxis of Typhus (K voprosu ob epidemiologii i kontagioznosti sipnogo tipha) L A Silberberg —p 972
121 Treatment of War Fracture of the Femur (O liechenii perelomov bedrenoi kosti po dannim russkoi i inostrannoi literaturi za tekushtshuiu voinu i na osnovanii 67, sobstvennikh sluchaev) M L Nobel Oleinikova —p 976 Concluded in No 43 —p 1017

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

November 11 1916 II No 20 pp 1769 1848

122 *Origin of Hallux Valgus (Over het ontstaan van den hallux valgus) J G Milo —p 1774
123 *The Parathyroid Glands (Epitheellichaampjes) H A Vermeulen —p 1779
124 *Phagocytosis of Red Corpuscles by Polynuclear Leukocytes (Phagocytose van erythrocyten door polynucleaire leucocyten) L Schaap and J W Wolff —p 1789

122 **Origin of Hallux Valgus**—Milo has had casts taken of the feet in a dozen cases of hallux valgus, and study of them has convinced him that the generally prevailing views as to the origin of this trouble are erroneous It is in reality the inevitable consequence of loss of the transverse elasticity of the fore part of the foot When the fore part of the foot has lost its transverse resilience from insufficiency of the transverse muscle, it may entail metatarsal neuralgia, Morton's disease ostitis, etc and dislocation of the great toe—hallux valgus—is practically inevitable He gives an illustration of the cast from the foot of one young woman Her feet had been normal until a tuberculous process developed in the middle metatarsal bone This was operated on successfully but the transversus pedis muscle was severed Although the foot seems clinically normal, yet hallux valgus followed within three months He emphasizes the necessity for detecting early this spreading of the foot and counteracting it, thus warding off secondary hallux valgus

123 **The Parathyroid Glands**—Vermeulen is a professor in the Veterinary College at Utrecht He here describes and illustrates the parathyroids as found in domestic animals, and reviews the literature on the subject To obtain parathyroids for therapeutic purposes he has found that for various reasons the sheep seems to be the best available animal The parathyroids in them are large and comparatively accessible after removal of the salivary glands The stroke to slaughter the animal should be made a little lower than is customary, to avoid injury of the parathyroids and the skin should be removed with care The sheep should also be over two years old This can be told from the teeth, as he describes in detail The parathyroids in hens are also available, they are small but compact and accessible The parathyroids offered now on the market are not always reliable, and his analysis of the anatomic conditions readily explains the mistakes liable to be made in removing the parathyroids

124 **Phagocytosis of Red Corpuscles by Polynuclear Leukocytes**—The experiments described were made with sheep or rabbit red corpuscles injected into the peritoneum of guinea-pigs The abdominal fluid was withdrawn by puncture at hour intervals afterward The red corpuscles were found incorporated in the polynuclear leukocytes, which had accumulated in large numbers in the peritoneum By the end of the fifth hour the large mononuclears take up the task

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125 *Modification of Skin Tuberculin Reaction after Repeated Application of This Test (Iakttagelser over tuberkulinsensibiliseringen vid v Pirquets reaktion och dess diagnostiska betydelse) G Lindberg—p 1553

126 Present Status of Knowledge in Regard to Action of Light on the Living Organism (Om ljusets inverkan på levande organismer) V Malmstrom—p 1579

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127 *Pathology of the Movements of the Eyes and Diagnostic Import (Till blickrorelsernas patologi) N Antoni—p 1617

128 *Means to Promote Lactation (Några erfarenheter angående digivning) H Ernberg—p 1636

125 **Diagnostic Findings on Repeated Skin Tuberculin Tests**—Lindberg has applied repeated skin tuberculin tests to 129 children in the hospital and sanatorium with which he is connected The ages ranged from 1 to 12 years The tuberculin skin test was applied to each arm and again after an interval of a week The reaction twenty-four hours after the test and a week later, was measured in both the axial and transverse diameters When neither diameter was over 5 mm the reaction was recorded as negative The findings are tabulated for the entire number, with further details as to the general condition etc Of the 129 children 33 3 per cent showed a much more pronounced response at the second double test than at the first In 60 per cent the response was weaker than at the first, in 6 7 per cent there was but slight difference

Classifying the cases in three groups as certain active tuberculosis, probable tuberculosis and the nontuberculous, he found this intensification of the reaction, or positive sensitization, *in only* 5 3 per cent of the 36 cases in the first group, in 28 5 per cent of 16 in the probable group, and in 78 per cent of the 18 nontuberculous These data confirm the assumption of a connection between this sensitization and the phases of tuberculosis, in that as a rule the response to the second application of the test is weaker when there is active tuberculosis, and stronger when it is latent Of the total 129 children, 75 had given a positive response when first tested In Bessau-Schwenke's research along similar lines 129 of 153 children had responded with a positive reaction in the Pirquet test The proportional findings with the repeated tests harmonized in both series confirming the reliability of the above deductions In a further series Lindberg obtained the positive sensitization in only 15 per cent of 20 children with manifest tuberculous processes in bones or joints A fourth table gives the findings in 15 supposedly healthy children and 15 healthy adults

The results of the whole research testify that with inactive tuberculosis the response to the repetition of the tuberculin skin test is more pronounced than at the first test, while the reverse is the rule with active tuberculosis The attenuation of the response to a second application of the test has thus a favorable instead of an unfavorable significance He found it most instructive to record the sum of the diameters of the reaction, including both the twenty-four hour and one week measurements

127 **Diagnostic Import of Abnormal Conjugated Movements of the Eyes**—Antoni reports in detail an instructive case of left hemiplegia with conjugated deviation of head and eyes to the right positive Wassermann reaction and typical response to the Barany caloric and other tests, all testifying to an extensive lesion in one hemisphere The phenomena observed confirm the assumption that an antagonistic inhibiting impulse proceeds from the center on the opposite side, and this persists after destruction of one center This explains the different behavior during and outside of coma, according as the brain is capable of the inhibiting action or not As consciousness is regained, the inhibiting function of the intact center is restored Antoni's research during general anesthesia has apparently disproved certain current assumptions in regard to vestibular reflexes, as he describes, and also in regard to a possible subcortical center and the so-called syndrome of Deiter s nucleus

128 **To Promote Lactation**—Ernberg remarks that nowhere in practical medicine is prophylaxis of such vital importance as in pediatrics and means to ensure breast milk for the child take the lead in this respect When the mother does not yield enough milk in the first five or six days this may be because the efferent passages are not fully permeable The amount of milk is also liable to dwindle during the third or fourth week, probably because the woman is resuming her usual household tasks before she is quite strong enough In all these cases the milk secretion has to be stimulated, and the natural stimulus for this is the sucking of the child The oftener it sucks the better the breast responds, but it must suck vigorously to be effectual In such cases he advises letting another babe nurse at the same time or at alternate times with the mother's own babe It may be necessary for this to have the woman go to some hospital or asylum where other babies are available By this means he has restored lactation even when it had been suspended for some time, having the breast nursed eight or ten times a day He gives the charts from four such cases In one after three weeks of nursing and two weeks of exclusive bottle feeding, ample lactation was restored in three weeks In another, after four breast weeks and five bottle weeks, it took seven weeks for ample lactation In the other cases there had been no breast feeding at all but after five or six weeks of bottle feeding the breast milk was gradually brought up to 600 gm in four weeks in one case and to over 1,000 gm in nine weeks in the other Three were primiparae He supplements the insufficient meal with artificial food weighing the infant after each breast feeding and giving enough of the bottle food to bring the total up to the desired amount As the mother is tranquilized by seeing that the child gets enough nourishment, this peace of mind has a further favorable influence on the lactation, and the amounts of supplementary artificial food required grow less and less

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VACCINE THERAPY

ITS POSSIBILITIES AND LIMITATIONS *

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A discussion of the possibilities and limitations of any topic involves more or less prediction In science it is dangerous to predict and especially is this so just now concerning the subject at hand, because we are in the midst of a revolution in methods and in interpretations as applied to this field It is with reluctance, therefore, that I attempt to present this subject, because I feel it cannot be done adequately at this time

After an attack of many infectious and contagious diseases, such as typhoid fever, smallpox, measles, scarlet fever, the body becomes for a long time highly resistant to the given disease, but not to any other disease The conception of specificity is here clear and definite

Many years ago Jenner found that smallpox in the modified and relatively harmless form of cowpox could be given to human beings and that they were then almost as resistant to smallpox as if they had had the disease

Pasteur, years later, showed that by injecting into animals certain modified living viruses (chicken cholera and anthrax) the animals then became resistant to natural infection and also to experimental infection with that germ This was true, however, of certain viruses only The injection of the virus of many other diseases did not so protect against subsequent infection

Later, Pasteur in his great work on rabies took advantage of the long incubation period in this disease and by the early injection of the modified virus contained in the spinal cord of infected rabbits was able to protect animals and man against the fatal outcome sure to follow in case symptoms once appeared This method, it is important to note, is in reality protective and not curative, because it is not effective if begun late or after the first symptoms have set in

Based on such experimental and clinical facts, which accumulated rapidly following the work of Pasteur, animals and man were given dead or modified living germs for protection in a variety of diseases Up to the present time this method has been used with marked success in man in typhoid fever and with some, but less definite success in plague and in cholera In animals, in symptomatic anthrax, swine erysipelas and rinderpest, marked success has been attained

For certain few diseases, then, the prophylactic use of specific vaccines has been thus far successful in both animals and man, but in the great majority of infections it has not been successful to any appreciable degree I wish to emphasize this point because it is in prophylaxis that we have the most favorable conditions possible, according to our fundamental principles of immunity, for the action of vaccines However, the marked success that has attended their use in such diseases as above enumerated establishes a practical and rational basis for their possible value in all infections Whether or not they will be efficacious in a given disease will of course have to be determined in each instance

I have referred to the above facts concerning prophylaxis because of their bearing on the curative use of vaccines A priori, on the basis of immunity principles, we could hardly expect to obtain better or even as good results when the virus is introduced during the course of the disease as when introduced previously What are the facts?

It was early observed that vaccination with cowpox virus during or after the onset of smallpox had no effect on the course of the disease Pasteur was well aware of the possibilities of a curative therapy as well as of a prophylactic one, but he reports no results of importance along curative lines Even to this day it is interesting to note that in the domain of animal diseases, which have been so fertile in furnishing valuable data for prophylactic therapy, there are no natural diseases known in which vaccines for curative purposes have been of any appreciable value Indeed, there is empirical evidence that vaccination just before or during an attack of a disease may do harm Veterinarians are careful not to expose cattle to infection soon after they have received prophylactic anthrax vaccine

Koch s work on tuberculosis in 1890 was perhaps the first serious attempt to apply vaccine therapy to the human and it was, as we all know, a failure at that time Scores of attempts with almost every imaginable modification of the bacillus, including extracts and bodies, have since been made Biggs states that treatment with tuberculin on the whole is being gradually given up in this country This is after a trial of twenty-five years It should not be understood from this statement that such treatment has no virtue whatever Trudeau's results would seem to indicate that when used discriminately tuberculin has some value perhaps in immunizing against the toxin A curative vaccine against the bacillus has, however, not been found

Fraenkel in 1893 used subcutaneously dead typhoid bacilli in the treatment of typhoid fever, with what he considered good results Rumpf shortly after claimed as good results when pyocyaneus bacilli were used in typhoid, thus very early questioning the specificity of vaccine treatment In recent years many reports have appeared dealing with this subject, the results being somewhat conflicting Beginning with the use of intravenous injections by Ichikawa in 1912 and by Gay and Chickering soon after, the treatment of typhoid, on account of termination by crisis in a considerable proportion of cases (30 to 40 per cent) thus treated, has excited much interest

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Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association Detroit June 1916

Wright in 1902 inaugurated a new era in the use of vaccines by his discovery of opsonins This subject is so well known I will not enter into detail As contrasted with Koch's and Fraenkel's work, it attempted to place the use of bacteria and their products in the treatment of disease on a rational basis, controlled by a carefully determined standard, the opsonic index According to Wright, vaccines were suitable in certain subacute and chronic infections, the object being to stimulate the protective agencies of the body in order to rid it of localized and perhaps more or less protected foci Acute infections were not considered suitable for the use of vaccines, though it should be stated that from time to time reports appeared indicating that good results were occasionally obtained in acute cases Such results were not altogether in harmony with Wright's theoretical conceptions, because in severe acute infections the defenses of the body were considered already overwhelmed and vaccines merely added to this toxemia

Wright's work has been based on the principle of specificity, as was nearly all the work on this subject before his time It is interesting here to note how thoroughly this principle has dominated the thought of men since the beginning of the bacteriologic era The idea of specificity rests on an absolutely secure basis of clinical and experimental facts Yet it is perhaps not an overstatement to say that for many workers it has become a dogma Wherever the principle seemed to apply it was not thought necessary even to use controls in the observations So in the therapeutic application of vaccines, if good results were obtained, it was taken for granted that this was dependent on the specific effect of the vaccine and no thought was given to the possibility of other vaccines or substances producing the same effect This was due, I think, largely to the very indefinite results obtained by the subcutaneous use of vaccines in many diseases For since the intravenous use of vaccines and other products, decidedly more definite results are possible and control observations with numerous substances can more readily be made

Following the work of Wright, careful and scientific as it was, there occurred a flood of commercialism in connection with the preparation of vaccines and bacterial products of all kinds Apparently it matters little in this age what the therapeutic agent may be, if it is possible to commercialize it, this will be done The abuse of these products has been discussed so well and so recently by Pearce, Theobald Smith, Hektoen, Billings and others that I will not dwell longer on this point

Scattered throughout the literature are the reports of more or less isolated observations that in the treatment of infections, both acute and chronic, good results have followed the use of nonspecific substances Though many of these reports are quite definite, indeed some decidedly more so than those obtained by specific therapy, since they did not appear to be in keeping with the dominating conception of specificity, they were regarded with skepticism or indifference This subject has very recently been thoroughly developed and the specific facts stated by Jobling and Petersen[1] The problem largely centers around the toxic effect of colloidal substances, especially the foreign proteins, on injection into the body

The favorable results first reported by Kraus, Ichikawa and others by the intravenous injection of typhoid vaccine in typhoid fever were soon followed by the further reports of Kraus, of Luedke[2] and of J L Miller[3] that equally good results could be obtained with other substances, such as colon vaccine or even with solutions of proteins, albumose, etc , in this infection Mueller and Weiss[4] have obtained striking results in arthritis, especially gonorrheal arthritis, by the intragluteal injection of sterile milk and of sodium nucleinate, both of which substances cause a marked reaction Smith[5] calls attention to the value of an anaphylactic reaction, in gonococcus infections obtained with horse serum, normal or antigonococcic, it matters not, provided the allergic phenomenon is manifested Miller and Lusk[6] report striking results in acute, subacute and chronic arthritic conditions of various types by intravenous injections of typhoid vaccines and proteose

In our laboratory Culver, engaged recently in this work, reports that in the treatment of gonorrhea and its complications, especially arthritis and epididymitis, with the intravenous injection of bacterial suspensions, there seems to be no specific reaction when gonococci are used as compared with other organisms The results have been very pronounced in most cases, marked relief following a single injection The suddenness of the reaction and the severity as characterized by chill, high temperature and leukocytosis are more marked following the injection of meningococci than following either gonococci or staphylococci The improvement seems to be in proportion to the temperature and leukocytic reactions As to recurrence of the infections, nothing can be said at present as sufficient time has not yet elapsed

Mathers,[7] working especially on lobar pneumonia and erysipelas, reports that these infections have been treated during the acute stage by intravenous injections of various vaccines and protein solutions Suspensions of typhoid bacilli, pneumococci, staphylococci and streptococci have been used, as well as normal horse serum, diphtheria antitoxin and various protein solutions, both animal and vegetable All of these substances, when used in sufficient dosage, may give rise to a characteristic febrile and leukocytic reaction which in some instances was followed by a temporary clinical improvement No evidence has been gained, however, which would indicate that the specific vaccine in these diseases excels in any way the nonspecific antigen Mathers infers from his experience with erysipelas and pneumonia that the therapeutic results from this method of treatment do not warrant the general application of this method He has also observed that citrated human blood produces a reaction similar to that described above when injected intravenously in amounts usually advised in transfusions.

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[1] Jobling James W and Petersen, William The Nonspecific Factors in the Treatment of Disease, The Journal A M A June 3 1916 p 1753

[2] Luedke Munchen med Wchnschr 1915 **62**, 321

[3] Miller J L Illinois Med Jour 1916 **29**, 8

[4] Mueller and Weiss Wien klin Wchnschr 1916 **29**, 249

[5] Smith, L D The Value of Anaphylaxis in the Treatment of Gonorrheal Complications The Journal A M A June 3 1916 p 1758

[6] Miller, J L and Lusk F B The Treatment of Arthritis by the Intravenous Injection of Foreign Protein The Journal A M A June 3 1916 p 1756

[7] Unpublished data

Since these very striking results have been obtained by the use of nonspecific protein substances, the specificity of treatment with serums in pneumonia and other infections and with vaccines, especially in typhoid, as reported by Gay, and in the many other diseases in which apparently good results have been obtained, may be called into question.

My own experience with vaccines, which began in 1904, has included a variety of infections, both acute and chronic. I have observed in certain cases, especially arthritic cases, and also in some colon infections, definite reactions, with chill, fever, leukocytes, etc., followed by a striking improvement. This experience, I think, has been a common one especially by those who have used large doses as well as small doses of vaccine. Naturally, the interpretation usually given to such reactions has been that they were specific responses on the part of the body to its autogenous virus. In the light of newer facts we are inclined now to view such reactions as probably nonspecific and of the same nature as those following injection of any foreign protein.

One difficulty in vaccine therapy has been to explain the good effects sometimes seen in the treatment of acute infections with vaccines. Wright himself and many other conscientious workers report such instances. As stated above, on the basis of the opsonic theory of Wright, this mode of treatment of acute infections was not a rational one and indeed was contraindicated. We may now believe that such favorable results were no doubt due to the nonspecific reaction caused by the bacterial protein.

At the present moment the facts would seem to indicate that the nonspecific substances referred to are able to do almost everything the specific vaccines have done in the cure of disease. In other words, the curative effects of vaccines reported heretofore may be explained by the action of the nonspecific substances in the vaccine rather than by its specific factors.

Jobling and Peterson,[1] in their analysis of the mechanism of the action of nonspecific therapy, call attention to a number of factors involved in this process. Selective stimulation of the hematopoietic tissues occurs, which results in flooding the body with antibodies which are specific, but the stimulus may be nonspecific. Hyperpyrexia and leukocytosis, emphasized especially by Gay and his associates in recovery from typhoid by this form of therapy, and the mobilization of serum protease and lipase, with an ultimate rise in the antiferment titer of the serum following injection of various foreign substances, are considered significant processes. These processes, they suggest, are dependent on certain changes resulting in the state of increased dispersion of colloids affecting both the serum proteins and the serum lipoids. Such changes are able to be brought about by a variety of substances which result in reactions clinically and therapeutically almost identical.

In such infections as the local staphylococcus infection of the skin and in some others in which, since Wright's first work, so many favorable reports have appeared it is quite possible that so far as immediate results are concerned a nonspecific foreign protein might act as well. However, in such cases there seems to be another factor concerned, namely, the specific immunity factor operating to prevent a recurrence of the infection. The nonspecific protein would probably not influence this factor and the use of autogenous organisms would be desirable for its immunizing effect. Therefore, where both a curative and preventive effect is desired, it would seem that the autogenous vaccine would be advantageous over a nonspecific protein substance, which might have only a curative action.

Subcutaneous injection of foreign proteins may behave quite like the intravenous injections, though the action is slower and the dose required for the desired effect is probably somewhat larger. On account of the very severe reactions occurring at times after the intravenous method, the question may be properly raised as to its possible dangers. Evidently further data are needed here, but if a proper reaction can be elicited by subcutaneous use, this route might be preferred on account of simplicity and perhaps safety. Even subcutaneous use of large doses may not be entirely free from harm. The writer knows of a case which, following a large subcutaneous dose of dead meningococci, developed a typical reaction manifested by a severe chill in thirty minutes, followed by fever of 103, nausea, vomiting, with leukocytes on the third day numbering 45,000. On the second day the urine contained albumin and large numbers of granular and hyaline casts, which persisted for several days.

An enormous number of patients are now being treated and will be treated throughout the country by this method. Much of it will be done by inexperienced men and no doubt we may expect some serious accidents to occur. I think it behooves us to take a conservative stand in the administration of these preparations and to advise strongly against the use of all sorts of unstandardized bacterial products which are now offered and will be offered to the profession.

In case it is shown conclusively that, for therapeutic purposes, any foreign protein may serve, the logical preparation for use would seem to be a sterile pure chemical preparation of some proteose, which can be carefully standardized. Such a substance would be far more reliable and satisfactory than the various vaccine mixtures and extracts now flooding the country.

SUMMARY

Recent work tends to show that many substances, the so-called foreign proteins and their derivatives, may, when injected especially into the veins, quickly cause a severe chill followed by high fever, leukocytosis and certain changes in the blood, especially the appearance of ferments. These proteins may be derived from disease germs or they may consist of other animal substances, as serum, proteoses and milk. After the rather severe reaction, marked improvement and even permanent cure may result in certain diseases, especially typhoid, and in rheumatic and gonococcus infections. This may be due to the high fever and to increase in the ferments and leukocytes of the blood. Other factors are probably at work.

The nonspecific effect of vaccines is just now probably the most important problem that concerns the vaccinationist. The possibilities of development along this line are many, for the principle concerns an immense number of diseases, both in man and the lower animals. Questions concerning ultimate cure, recurrences, relapses and dangers cannot now be justly appreciated because of lack of data.

This form of treatment should be referred to neither as specific nor as vaccine therapy. It is nonspecific, and usually, but not necessarily, protein therapy.

The important domain of vaccines is protective, not curative, according to present data.

CLINICAL EXPERIENCE WITH THE USE OF VACCINES IN DISEASES OF THE EAR, NOSE AND THROAT *

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In the consideration of such a subject as is indicated by the title, it is evident that full justice cannot be done to each disease of the upper air passages with which immunotherapy has been tried The option will therefore be exercised by the writer of selecting those which have been most extensively studied or are most prominently before our branch of the profession today, and endeavoring from the works of others, as well as from his own experience, to arrive at a just appreciation of their present value He may as well confess at the start that he is a believer in this form of treatment, although admitting that it is often far from satisfactory in the light of our present knowledge He feels somewhat diffident in presenting this subject to you and commenting favorably on the results obtained, in view of the present tendency to belittle vaccine therapy, either prophylactic or curative, specific or nonspecific

In reality, only the threshold has been passed in the study of immunology as applied to ear, nose and throat diseases, many problems remaining to be investigated, among which might be mentioned improved methods of taking cultures and of determining the infecting organism or organisms, the preparation of more efficient vaccines, whether by sensitization or otherwise, some accurate method of counting organisms and of determining the dosage for different organisms and different individuals And it is well to sound a note of warning at the outset, that vaccine therapy, much as may be hoped for it in the future, will probably never supersede the surgery that is necessary for drainage and for the correction of abnormalities that by their presence keep up irritation of the tissues and thus are conducive to reinfection by the same or another type of organism Much as we should like to immunize permanently against everything, in spite of such malformations, it seems hardly probable that this Utopia will ever be reached

In the popular craze for giving vaccine treatments which has pervaded alike the specialist and the general practitioner, vaccines have been administered for every known and unknown disease, with reason or without, more often the latter This has been, to a large extent, due to the many commercial brands on the market and the often absurd claims put forth for them by their makers By this it should not be inferred that these popularly called stock vaccines are without use or value, for many men have obtained results by their employment From the very nature of the case their use is imperative in certain conditions, even the much abused mixed varieties, often miscalled polyvalent, and these vaccines must not be confused with the stock suspensions of the home laboratory, also at times a most useful product Warning must also be issued against the confusion existing in many minds, or at least on many tongues, and this not by any means confined to the laity, between serology and vaccine therapy It is needless to define the terms to this audience, but bacterins are so often miscalled serums that it has seemed necessary to call attention to these two distinct immunity-producing methods of treatment, since only the first will be considered here

THE NOSE

Acute Rhinitis—Probably the most general adaptation of vaccines to ear, nose and throat practice has been their use for the prophylaxis of acute rhinitis or common cold, not only by the specialist, but by the general practitioner, the country over So much so, indeed, that patients now demand the so-called serum treatment The mere fact that it has come into such general use by physicians and general demand by the laity would indicate at least some value in this method Most of the immunization is, of course, necessarily done with the aid of commercial mixed vaccine of the many well-known different brands on the market It would be manifestly impossible to culture the causative organisms for the next cold from every nose at present in healthy condition, although it is probable that in a certain proportion of cases organisms would be obtained from which competent vaccines could be made In case the patient is subject to repeated acute colds, cultures taken during one of these may be used for vaccine preparation and prophylaxis against future ones, with most excellent results

Taking it for granted then that the use of vaccines for the prophylaxis of acute rhinitis is of value, one would naturally ask of how much value this method is Many cases, of course, will fail to respond, due probably to the fact that the organism causing the cold is not in the vaccine used whether it be autogenous or commercial mixed For it is quite possible that in taking the culture from the nose the causative organism may not be obtained In this relation the work of G B Foster,[1] recently published, in which he seems to demonstrate as an etiologic factor in acute rhinitis minute filterpassers or filterable toxins, would very readily explain these failures By accepting this work as being of great value, we must not forget that the old, well-known organisms do cause a certain percentage of rhinitides, or at least by secondary infection prolong them to their customary length, and when due to them, vaccine treatment will prevent or cure a very considerable proportion

The duration of immunity depends much, of course, on the amount of exposure, the individual peculiarities of the patient, the amount of vaccine given, and the presence of epidemics For instance, a patient subject to attacks of acute rhinitis every few weeks may be so immunized that the interval will be stretched to six, eight or ten weeks or longer The individual who has one or two bad colds during the winter may be immunized so that he will go from year's end to year's end without any These immunized patients frequently start apparently to have colds, that is, sneezing, sniffling, coryza, etc, which symptoms pass off in the course of a few minutes or a few hours This is readily explained if we consider the probable etiology of many colds Change in temperature of the air inspired or impinging on certain dermal surfaces excites reaction in the vasoconstrictor and vasodilator and secretory centers and a corresponding relaxation of the nasal mucosa, an increase of blood, secretion, sneezing, etc Here it probably is that the infection takes place and prolongs the cold If the patient is immune to infection the cold disappears with these few symptoms

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* Read before the Section on Laryngology Otology and Rhinology at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June 1916

[1] Foster, G B The Etiology of Common Colds The Journal A M A, April 15 1916 p 1180

In this connection, a word or two on the treatment of acute colds is appropriate If colds are treated early, there is no doubt that a great many of them may be stopped short, that is, within twenty-four hours But, of course, to do this an autogenous vaccine cannot be used, nor can a bacterial diagnosis, as a rule, be made on account of the shortness of the time Acute tonsillitis is in precisely the same category The well-known role that acute rhinitis in repeated attacks plays in diseases of the ear will at once convince the aural practitioner of the value of this prophylaxis While the actual condition may or may not be improved by the vaccine, there can be no question that the lengthened interval between attacks and the diminished severity of them makes it possible to obtain results in the treatment of recurrent acute catarrhal otitis media and chronic catarrhal otitis media that are not possible without some such method of treatment for the nasal condition

Accessory Sinuses—What has been said here in relation to diseases of the ear applies equally to acute and recurrent diseases of the accessory sinuses of the nose Vaccines, as a rule, have but little influence on suppurations of the various sinuses, except under certain conditions When free drainage is obtained the use of appropriate potent vaccines will usually hasten a cure Or if given before operation the individual's immunity will be so raised that it will accomplish the same result But, as in diseases of the ear, perhaps their greatest value is in preventing the recurrent acute infections that so often terminate in an attack of sinusitis The reports would indicate that the use of vaccines in cases in which the given sinuses are filled with pus with insufficient drainage is entirely useless

Much of what has just been said is, of course, well known and to a certain extent may be considered established, although the numerous failures that everybody has have produced many pessimists in regard to vaccine therapy

There are two new subjects to be included under the title of this paper that are of interest, besides the pollen treatment of hay-fever, which is not, of course, a vaccine treatment, although it approximates it and will, therefore, not be considered

Ozena—The treatment of ozena by any method has, as every one knows, been most unsatisfactory, and commissions have, at times been appointed by various national scientific societies to study the question, but without obtaining any results Within the last few years Hofer of Vienna, working in collaboration with Kofler, unearthed the forgotten contention of Perez that a bacillus, supposed to be of the Friedlander group and called by him the *Bacillus ozaenae-foetidae* was the cause of ozena, and could be found on and isolated from the mucosa underlying the crust Two of the early workers in this field were Skillern and Holmes[2] of this section and their report was one of the earliest Their findings were, as far as they went, similar to the above Hofer and Kofler followed the lines laid down by Perez, and later Skillern, treating their patients with vaccines, not autogenous, but made by themselves from half a dozen different strains, and therefore polyvalent Their results, while by no means uniformly good, were on the whole very encouraging, and a number of Americans in the last two years have studied with Hofer and have obtained various results by his own or modified methods Some reports have given us total failure, others, notably Horn of San Francisco and Klenk and Guggenheim of St Louis, claim almost universal success

Horn, however, disproves the contention of Hofer that the *Bacillus ozaenae-foetidae*, or the coccobacillus, as he calls it, is at all related to the Friedlander group, but claims that it is a motile and flagellated organism similar to, if not identical with, that which causes distemper in dogs, the *Bacillus bronchosepticus* He uses agglutination tests to aid in his diagnosis and administers to his patients a polyvalent stock vaccine of his own preparation and claims almost 100 per cent of improvements or cures Klenk and Guggenheim prepare autogenous vaccine for their patients with good results If Horn's contention proves to be correct, that the coccobacillus is not of the Friedlander type, but belongs to the colon and typhoid group, it would seem that most investigators have been on the wrong track and have been working with the Friedlander itself, which is probably a normal inhabitant of the nose In this connection, however, Friel[3] claims excellent results from the intravenous injection of a sensitized living vaccine of Friedlander's bacillus He gives this in very small doses, 2 million only, and avoids severe constitutional symptoms If the etiologic factor in ozena is not an organism of the Friedlander group, this treatment would only avail by immunizing against a secondary Friedlander infection, which might improve the patient's condition greatly Indeed, the writer has seen some apparently good results with a killed, nonsensitized vaccine of this organism given hypodermically

Dan McKenzie of London, a keen and usually capable observer, has just issued a claim and offered proof, that ozena is a manifestation of tubercular infection, not nasal, and believes the acid-fast bacilli which he invariably finds underlying the crusts to be attenuated forms of tubercle bacilli His reasoning in reaching this conclusion is out of place here, but he claims very great improvement, if not cure, following tuberculin treatment, the usual small dose, without reaction, being used While he noted marked improvement in a large percentage of cases, he found a tendency to relapse following the cessation of treatment There was also a concomitant gain in strength and health

Asthma—Babcock, as well as others, has called attention to the value of autogenous vaccines in the treatment of essential asthma, and it seems not out of place to refer to it in this paper He considers essential asthma to be an anaphylactic reaction to some form of foreign protein, whether it be animal emanations, pollen, food substances, such as fruits, vegetables, meats and shell fish, bacterial proteins from the accessory sinuses, the ears, the tonsils, pyorrheal pockets, gastro-intestinal absorption, gallbladder infection, etc His method of combating this distressing infection is to search most industriously for the source of the protein absorption and to eradicate it, if possible, using an autogenous vaccine, in addition to the surgery, if the focus is found in the body Besides that, or if no such focus is found, he makes an autogenous vaccine from the bronchial sputum, which can always be obtained in large quantities in these cases

He finds the usual organisms of bronchitis or tracheitis and in addition an anaerobic organism, which he cannot classify, but which he believes to be the main cause of the asthmatic attacks, and whose inclusion in the mixed vaccine prepared seems to be necessary. By this technic he claims that most patients with essential asthma, uncomplicated by organic disease of the heart or kidneys, can be cured or at least permanently relieved. This is of the utmost importance to us who make a study of the diseases of the upper respiratory tract, and must of necessity be intimately connected with our line of work. It emphasizes perhaps as much as anything else the fact that we must not depend on vaccine alone for the treatment of our patients. The necessary surgery to secure drainage and the eradication of foci of infection is absolutely essential, and given these conditions, and an intelligent use of vaccines, great results may be anticipated. And this applies not only to asthma, but to all diseases of the ear, nose and throat.

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[2] Skillern R H, and Holmes E B New York Med Jour Aug 15 1908

[3] Friel Lancet London January, 1916

THE EAR

There are six more or less distinct conditions of aural infection, all but one related to each other, in which vaccines have been used with some degree of success, and it is proposed to consider them in their order of severity.

Otitis Externa Diffusa et Circumscripta (Furunculosis of the External Ear).—It is well known how trying, though seemingly how trivial, this affection often is to patient and physician alike, and its well-known tendency to a succession of infections or recurrences in one or both ears or alternating between the two. It is analogous to the ordinary acne vulgaris, but it is not identical with it, and it is preeminently a very localized process and distinctly amenable to vaccine treatment. As the furuncle yields ordinarily to local treatment or is self-limiting, it is not until there is a succession of them that there is a distinct call for more definite immunization and prophylaxis against the recurring crops. Then a vaccine made from the infection evacuated by the knife will often prove most efficient in terminating the trouble. For treating the initial lesion this is manifestly impossible since by the time pus has formed in sufficient quantity for obtaining a culture that particular infection is almost at an end.

If from the history of the case it is feared that there will be more following, the wise immunologist will proceed to have a vaccine made and administer it to guard against this contingency. In case the infection is of that obstinate, painful type that shows no tendency to localize and soften, to "point," in common parlance, a stock vaccine may be utilized, since most, if not all, of these infections are caused by either the *Staphylococcus albus* or *aureus*. Left-over suspensions of these organisms, prepared for the treatment of other patients and properly preserved, frequently answer well for this purpose, or for use pending the preparation of an autogenous vaccine. If these preparations were polyvalent perhaps they would be more uniformly successful even than they are, although frequently they are most efficient. Naturally, if the infection has localized and pus is present there is a positive indication for drainage, whether vaccines are used or not. If they are a very fair prognosis for freedom from recurrence may be given.

Acute Catarrhal and Suppurative Otitis Media.—Like the preceding, acute catarrhal otitis media is a more or less self-limited affection hardly calling for the artificial production of immunity except in the treatment of the nasal condition in which it has its origin. However, if we have it in the recurrent form, cultures taken from the tympanum, or in default of this, from the nasopharynx, will produce a vaccine that will have a distinct limiting and prophylactic effect. Here again necessary drainage must be obtained either through the eustachian tube or the membrana tympani, and the contributory tonsils and adenoid removed. It must also be remembered in estimating the results in this as well as the more severe variety of the same disease, acute suppuration, that the natural tendency is to get well, almost in spite of treatment, and the mere fact that this is accomplished must not be attributed solely to the vaccine until a large number of cases has been carefully studied in detail. This has been done by Weston and Kolmer, as quoted in a previous paper, and it was shown that in a large number of cases the length of time for cessation of discharge in these suppurations was very materially reduced by the preparation and administration of autogenous vaccines.

Chronic Catarrhal Otitis Media.—So far as the writer can learn by a search of the literature, by his own experience or by the process of reasoning, vaccine therapy can have but a small direct influence on our chronic catarrhal ears. In these the damage is done, and except for the treatment of the tubal and nasopharyngeal condition, aggravated by repeated acute nasal infection, which has been discussed above, little can be expected from it. In this latter respect, however, results, albeit not brilliant, may be obtained.

Chronic Suppurative Otitis Media.—Some years ago, when it was first announced that the use of vaccines would in large part supersede the accepted methods of treatment for chronic suppurative otitis media, much doubt was expressed, and many workers took up the question to achieve, in the main, only disappointment. While not as brilliant, on the whole, as many were led to expect from one or two notable series reported, the method undoubtedly has its uses, if also its limitations, and it is the feeling of the writer that it should always be given a fair trial before proceeding to the court of last resort, namely, the radical operation, except where very distinct contraindications exist that may endanger life by delay or at least make all chance of success hopeless. Such contraindications are any symptoms pointing to the imminence of intracranial involvement, probably labyrinth suppuration, extensive caries of the tympanic walls, chronic mastoiditis and cholesteatoma.

However, even when success is not obtained by the use of vaccines in this condition and it eventually becomes necessary to proceed to the radical operation, the ground has been well prepared, a certain amount of immunity established, and the chances are that healing will be more rapid and satisfactory. The treatment of chronic suppurative otitis media by vaccines is perhaps as complicated and difficult as that of any other disease in the body. Almost always a mixed infection, it is extremely difficult to detect and isolate the causative organism or organisms, and all depends on the technic employed and the success obtained in this very first particular. The method adopted by most workers in this line is to cleanse the external canal and middle ear thoroughly by swabbing or suction, sterilize with alcohol for various lengths of time, then by inflation or suction, produce a drop of pus or moisture in the middle ear and from this take the culture with a sterile platinum loop. In this way only can contaminating saprophytes be avoided. The sterilization may be too complete, in which case no growth will result and it will be necessary to repeat the process, but no particular harm has been done other than the delay of a few days

With a potent vaccine made from the proper organism results will depend on the proper dosage, intervals between doses and possibly to a certain extent on the local treatment which should be carried on simultaneously with the vaccine administration, except when cases are being cared for by this method experimentally to determine its value In these cases, no local treatment should be given If a case is about to respond favorably to the vaccine, a local reaction is first obtained on the arm at the site of injection and a focal reaction in the ear consisting usually of a sensation of heat, an increase and a thinning of the discharge, followed after a few days by a diminution and thickening If no improvement is observed after five or six doses have been given, or if improvement has followed up to a certain point and then ceased, the vaccine treatment is discontinued, the patient allowed to rest for a few weeks, and further cultural studies made of the ear, at which time it may be determined that the type of organism has changed and that a fresh vaccine will be made up of a new group of organisms No one is justified when a mixed culture is obtained, as it usually is, in picking out one or two organisms and discarding the others All organisms included when the culture has been taken in the way outlined above should be made into vaccine By this it is meant they should be plated out and grown separately and mixed finally Many early failures in the hands of the writer were due to arbitrarily picking out certain organisms which were thought to be causative and discarding others, notably the *Bacillus pyocyaneus,* which was not supposed to be pathogenic It was found, on the contrary, that the *B pyocyaneus* when included in the mixtures or when used in pure cultures, gave probably the best results of all vaccine treatment

It is impossible to say in what proportion of chronic suppurative otitis media the discharge can be arrested It is not well to use the word cure because of the well-known tendency to recurrence after any method of treatment, and while it seems probable that this tendency is much less after proper immunization, still it must be recognized that it exists In studying results also, just as in the acute diseases mentioned above, it must not be forgotten that many of these ears become dry under ordinary treatment or even without, so that due allowance for this must be made In arriving at conclusions as to the value of vaccine in this disease, care should be used in excluding as far as possible this spontaneous result by taking only cases of proved chronicity which have been under all other methods of treatment for a long period of time

A series of fifty cases of this type, recently reported by the writer and his assistant, M S Ersner, showed dry ears obtained in only 46 per cent But in view of the fact that otherwise all of these cases would have gone to radical operation for a cure, it would seem that something has been gained The problem here, it would seem, is to find some method of determining which organisms are the true pathogenic ones This was attempted last year in connection with the series just mentioned and twenty-five complement fixations were done on these cases, with a negative result in all The reasons for failure were possibly the facts that only three polyvalent collections of organisms were used as antigens or because of the extreme local character of the process in the middle ear and the constant lack of sufficient antibodies in the blood to give the reaction Much work might be done along this line to very great profit In this same series of cases there were no positive Wassermann reactions among the failures, but there were five positive von Pirquet tests

Mastoiditis and Its Complications—No one will advocate dependence on vaccines for the treatment of a case of acute mastoiditis if this is avoidable, though it is conceivable that they may be used if for some reason operation is out of the question or might bring added danger There would be no objection to their use during the period before operation of a slowly developing mastoiditis They would at least do no harm and would probably raise the patient's resisting power sufficiently to make quick recovery possible They must, however, in no sense be considered to take the place of the mastoid operation in case this is possible and imperative, but several times in the practice of the writer, and many times by personal reports to him from other practitioners, the administration of vaccines has put a definite check to a slowly progressive mastoiditis or has been the determining factor toward resolution in one that was at a standstill

While definite failures to produce this result have also been reported, it is the opinion of many that it is often a useful procedure That it is dangerous teaching is evident, as it may hold out hope for recovery until the time of election for operation is past, and vaccine should therefore be used with the greatest care and judgment in mastoiditis and the indications for operation closely watched At the time of operation, pus recovered from the mastoid should always be sent to the laboratory for bacterial diagnosis, and it is the writer's custom either to have a vaccine made at once or at least to keep subcultures going until it is determined that a vaccine will not be needed The first method is preferable, as it is very little more troublesome and the vaccine is ready for use if the case does not progress satisfactorily Indeed, it would seem wise to use the vaccines in all cases as soon as prepared after operation, since healing is more prompt by their use When we come to intracranial complications and general septicemia, vaccines are of no avail In this acute general process antitoxins and serums should be the more scientifically correct, but evidently do not seem to have been of very much use in practice

STOCK VACCINES

The writer has an open mind as to the relative values of autogenous and stock vaccine That the latter is often of value in cases in which the autogenous product has failed is beyond question from any one who has done much of this work Indeed, the whole theory of prophylactic immunization depends on this fact, so well exemplified in the case of typhoid fever So far as it has gone, also, the vaccine treatment of ozena by a polyvalent stock vaccine has proved eminently satisfactory in the hands of Horn It can readily be seen how this may be so, if the suggestion of a basic protein common to all bacteria, or at least to associated groups, be accepted, giving at least partial immunity, and it is equally evident that it may fail in certain instances, notably the streptococcus group, since there are so many different varieties with widely separated characteristics and of greatly differing degrees of toxicity

The subject of bacterial therapy is an absorbing one to most practitioners, and since commercial vaccines have been supplied in such quantities and made so readily obtainable, it has been used by thousands who doubtless understand little of the therapeutic action of the agent being used Frequent warnings have been issued against the indiscriminate use of vaccines and the dangers attendant on their employment The question is often asked whether under the circumstances a nonbacteriologist is justified in their use and if the danger is not greater than the chance of cure The writer, while he formerly inclined toward this view, after having given several thousand injections in clinic and in private practice and being cognizant of as many more, has yet to see any more harm result from their use, even if not always intelligent, than from an equal number of ordinary hypodermic injections One or two cases have been reported to him with somewhat severe reactions, alarming at the time, but this may happen with almost any form of therapy Of course the claims of the makers of commercial vaccines are usually absurd and misleading, although it is surprising how many men of intelligence will accept them at times, even in the face of all reason

SUMMARY

To summarize briefly, the writer feels that if vaccines have not fulfilled all of their early promise, they have at least given us a very effective extra means of combating infection, especially if used in conjunction with skilful and intelligent surgery, and that little harm will or can result from their use, even by the novice, provided the injections are given hypodermically, rather than intravenously, as in the latter method the reactions are at times exceedingly severe and alarming In a number of instances, notably ozena, it seems as if vaccine therapy alone might solve a problem which has been puzzling clinicians hopelessly for years, and until some more efficient substitute is discovered, vaccine therapy has its distinct place as a therapeutic measure in diseases of the ear, nose and throat

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS DAVIS AND COATES

Dr Daniel W Layman, Indianapolis I have had some experience in the use of autogenous vaccines in the treatment of cases of chronic suppuration of the accessory sinuses As far back as 1912-1913 I used the autogenous vaccine in the first group along with the regular routine treatment In almost all of these cases we established thorough drainage by operative procedure, whether it was a conservative or radical case, and after the effects of the operation subsided we commenced this series of cases with autogenous vaccines, made both in the regular way and by animal experimentation Most of these cases were of the staphylococcus type, *Staphylococcus aureus* predominating In the second group we used the autogenous vaccine without the necessary operative procedure These patients refused nasal surgery and so I carried them along as well as I could with only the vaccine Then in the third group of cases, just for comparison, I used the regular method of treatment without any vaccine whatsoever I think that my results were about the same as Dr Coates reports, that is, that the vaccine is a material aid in the treatment of chronic suppurative disease of the accessory sinuses along with the routine treatment and necessary nasal surgery In other words, it is absolutely necessary to establish thorough drainage and ventilation, and vaccine therapy per se, that is, without the assistance of other treatment, failed to be of any benefit as a therapeutic agent

In the third group I used routine treatment and operative procedures when necessary, but without the aid of vaccines Compared with the first group they did not do as well In other words, I found that autogenous vaccine is a valuable aid in the treatment of chronic suppurative conditions of the sinuses where the treatment has been given to establish proper drainage and aeration of the sinuses In regard to the treatment of acute rhinitis, I have not had any experience with autogenous vaccines, but I have had some experience with the stock vaccines Two or three men who worked in a drug house came to me with bad colds in the head They brought with them some stock vaccines and wanted me to try them out I did so and got fairly good results I did not use the stock vaccines during the acute attack, but waited until the acute attack was over and then gave the vaccine at three or four day intervals, about three or four doses altogether, increasing the strength from time to time The treatment with stock vaccines of ordinary colds not only with the clerks as above mentioned, but with other patients has been quite satisfactory

Dr John A Pratt, Aurora, Ill I have been lucky in my vaccine cases I have had very good results I use both the autogenous and the stock vaccines In cases in which I do not have the time to make the autogenous vaccine, I have taken the autogenous vaccine of other cases and mixed it with the stock vaccine and injected that In that way I thought I should be able to obtain a vaccine of the local germ, of a local infection that was going round, and these patients have seemed to improve Patients with sinus trouble have improved rapidly in my hands with vaccines It does not seem to make much difference whether it is autogenous or stock One case of tuberculous middle ear discharge ran a long time The patient, a woman, did not improve under the autogenous vaccine and at that time an old gentleman came in who had a running ear for years, so I decided to try this woman's autogenous vaccine on the old man I gave him three injections and the ear dried up and was cured That was about five years ago He was in my office before I came away and I asked him about his ear and looked at it and it was perfectly dry In the woman I had no improvement whatever This possibly may be, as Dr Davis indicates, leukocytosis but I have seemingly had some results from the vaccines

Dr David John Davis, Chicago Many phases of this problem are unsatisfactory to discuss at the present time We need more data and especially do we need control observations It is remarkable how few control data exist in vaccine work There is no doubt that reactions occur after vaccines and that good results have followed their use in some cases but the question centers around the idea of specificity In other words, have these reactions a specific curative value? At present, data are rapidly accumulating indicating the non specific character of the results It is an interesting fact that so far as animal diseases are concerned we do not know of any instance in which vaccines are curative This is in striking contrast to the role that vaccines play in animal diseases for prophylactic purposes This is true of natural and experimental animal diseases For example, Dr J J Moore has shown that in rabbits already infected with streptococci, vaccines have no appreciable effect on the course of the infection However, if the vaccines have been given some time previous to the inoculation the animal may be protected to some degree at least

Dr George M Coates, Philadelphia Laboratory men and clinicians are very apt to differ, and it seems to me very necessary that they should get together more closely than they have in the past Animal experiments prove a great deal from their standpoint, but it is only by using the results of these in combination with the work of the clinicians that we get ideas about the value of our methods of treatment In regard to specificity, I always supposed that if we did not get results with the autogenous vaccines it was due to the fact that we did not have the specific organism If this new theory is to be accepted it wipes that out—the stock vaccines will probably give as good results as the specific vaccines We are at the beginning of this method of therapy, after all

An Estimate—But nothing is more estimable than a physician who, having studied nature from his youth knows the properties of the human body, the diseases which assail it, the remedies which will benefit it, exercises his art with caution and pays equal attention to the rich and the poor—Voltaire

STUDIES OF THE GASTRIC RESIDUUM

I A STUDY OF EIGHTY SAMPLES OF GASTRIC RESIDUUMS OBTAINED FROM APPARENTLY NORMAL WOMEN *

CHESTER C FOWLER, PH D
AND
ZELMA ZENTMIRE, M S
AMES, IOWA

Extensive studies of the gastric residuum of normal men have been made by Hawk and collaborators[1] These investigations have demonstrated that the average volume is quite large (in over 100 normal cases the average was 52 14 c c), quite contrary to the views of Loeper,[2] Zweig,[3] Kemp,[4] Wolff,[5] Strauss,[6] Riegel,[6] and Soupalt,[6] who assert that the quantity of residuum in the normal fasting stomach should not exceed 20 c c Rosin and Schreiber[6] suggest a maximum limit of 60 c c for the volume of the gastric residuum A variation of from 17 to 180 c c in the volumes of the various residuums examined by Hawk further demonstrates the unimportance of the quantity of residuum as an aid in diagnosis These findings of Hawk and collaborators have recently been confirmed by Talbot[7]

The residuum is a physiologically active secretion[8] and is probably in part the result of the activity of the gastric glands[8] and in part the result of fluid which passes by osmosis[8] through the stomach walls into the lumen of the stomach The fact that bile and trypsin are both quite frequently found in the residuum leads one to believe that a portion of it at least is due to regurgitation of fluid from the duodenum[9] Swallowed saliva and esophageal secretions may also give rise to another portion[10] The last factor was greatly eliminated in the work of Hawk and collaborators[1] by encouraging the subjects to reject as much saliva as possible by expectoration That the residuum is not wholly due to saliva was clearly demonstrated by Fowler, Rehfuss and Hawk, in the case of Subject B 106 a This subject, normal in every way, submitted to the passage of the tube on the empty stomach in the morning Forty-nine c c of liquid were removed, and tests showed that the stomach was empty Two hours later, during which time the person in question attended a lecture, was free from psychic stimuli, and swallowed no saliva, 29 c c were withdrawn (Case B 106 b) Furthermore, these two secretions were essentially the same in every particular Carlson[11] has also demonstrated that a fluid is being continuously secreted into the empty stomach

The total and free acidities are subject to almost as wide variations as is the volume The total acidity, in the cases presented by Hawk, ranged from a minimum of 2 4 c c of tenth-normal sodium hydroxid to titrate 100 c c of juice (about 0 009 per cent acidity in terms of hydrochloric acid) to a maximum of 77 6 c c (about 0 28 per cent hydrochloric acid), with a mean average of 29 9 c c (about 0 11 per cent hydrochloric acid) The free acidity averaged 18 5 c c (about 0 07 per cent hydrochloric acid), with a range from 0 c c (0 per cent hydrochloric acid) to 65 8 c c (about 0 24 per cent hydrochloric acid) These acidities are much smaller than those given by Carlson,[12] and obtained from a subject with a gastric fistula The acidities of the contents of the empty stomach of this subject were 0 23 per cent hydrochloric acid and 0 18 per cent hydrochloric acid for total and free, respectively

A definite relation between the pepsin content of the gastric residuum and total acidity has been demonstrated for low acid values, but this relation has been shown to disappear as high acid values are approached (Fowler, Rehfuss and Hawk)[1]

The same investigators found trypsin to be present in practically every specimen of residuum which was examined for it Dorner[13] showed the presence of trypsin in practically all of the residuums obtained from 154 patients, most of whom had gastro-intestinal disturbances The cases reported by Hawk and co-workers[1] were nonpathologic The occurrence of trypsin in the stomach has been more completely studied by Spencer, Meyer, Rehfuss and Hawk[9]

The present investigation was undertaken for the purpose of determining whether or not there existed any pronounced differences between the residuums of normal men, and the residuums of normal women

METHODS

The subjects of the experiments described in this paper were young women students in the courses in physiologic chemistry at Iowa State College They willingly submitted themselves for the experimental work, and were requested to drink no water at any time after their evening meal on the night previous to the experiment They came for the removal of the residuum at 8 o'clock the following morning, and every residuum was removed as near that time as was compatible with the experiment Each woman was given a thorough examination, physically and by questioning, to detect any abnormalities if they existed

The residuums were removed by means of a modified stomach tube described by Rehfuss[14] The swallowing of the tube was accomplished without the aid of water The tube and tip were first coated with a thin film of petrolatum, and then the tip was placed in the lower part of the pharynx, back of the tongue, and swallowed without much difficulty When the tube had reached the stomach (which was ascertained by measurements), the contents were aspirated from it while the subject was reclining on her back, stomach and on each side and breathing deeply The liquid was immediately measured, placed in an Erlenmeyer flask, and its characteristics noted The residuum

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* From the Laboratory of Physiological Chemistry Iowa State College

* Because of lack of space this article is abbreviated in THE JOURNAL by omission of a table of tests of the normal gastric residuum of women The complete article appears in the reprints a copy of which will be sent by the authors on request

[1] Rehfuss M E Bergeim Olaf and Hawk P B Gastro Intestinal Studies I The Question of the Residuum Found in the Empty Stomach THE JOURNAL A M A July 4 1914 p 11 Fowler C C Rehfuss M E and Hawk, P B Gastro Intestinal Studies X An Investigation of the Gastric Residuum in Over One Hundred Normal Cases Sept 18, 1915 p 1021

[2] Loeper Leçons de pathologie digestive Series 2 1912 pp 17 19

[3] Zweig Magen und Darmkrankheiten p 459

[4] Kemp Diseases of the Stomach Intestine and Pancreas 1912 p 133

[5] Wolff Taschenbuch der Magen und Darmkrankheiten p 22

[6] Cited by Loeper (Footnote 2)

[7] Talbot E S Jr The Examination of Normal Gastric Secretion by the Fractional Method THE JOURNAL A M A June 10 1916 p 1849

[8] Fowler Rehfuss and Hawk (Footnote 1)

[9] Fowler Rehfuss and Hawk (Footnote 1) Spencer Meyer Rehfuss and Hawk Am Jour Physiol, 1916 **39**, 459 Boldyreff Quar Jour Exper Med, 1914, **8**, 1

[10] Sokolow Dissertation, St Petersburg, 1904 (Babkin Die Aeussere Sekretion der Verdauungsdrusen 1914 p 110) Grobbel Ztschr f physiol Chem, 1914 **89**, 1

[11] Carlson Am Jour Physiol 1913 **31**, 151

[12] Carlson Am Jour Physiol 1915, **38**, 248

[13] Dorner Deutsch. Arch f klin Med 1915 **117**, 540

[14] Rehfuss Am Jour Med Sc June, 1914

was then filtered through moistened qualitative filter papers, and the first few drops of filtrate were discarded The following determinations were then made, as far as possible, on the filtered residuum total acidity, free acidity, pepsin and trypsin

The methods[15] for total acid, free acid and pepsin were those used by Rehfuss, Bergeim and Hawk[16] Trypsin was determined by the method of Spencer[17]

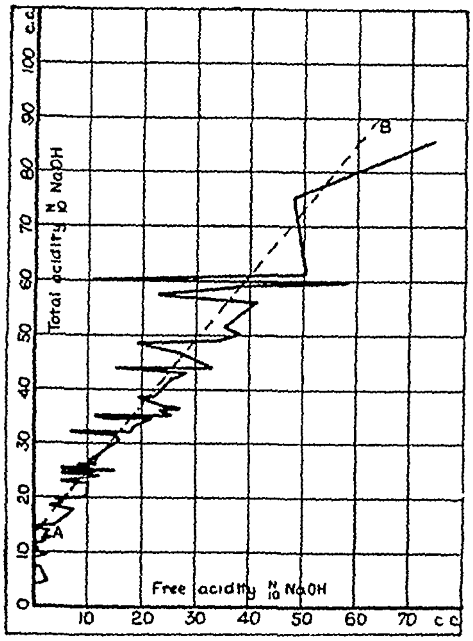

Chart 1 —Relation of total to free acidity of residuums

DATA

Eighty-one samples of residuums were collected from sixty different subjects, twenty-one of the subjects submitted to the passage of the tube twice

Averages on the Compilation of the Normal Gastric Residuum —1 The average quantity removed in eighty-one cases was 49 44 c c, the largest quantity being 135 c c and the smallest 12 c c

2 In sixty-nine cases noted, the residuum was in twenty-two cases (32 per cent) colorless, and in forty-seven cases (68 1 per cent) yellow or green

3 The total acidity recorded in eighty-one instances averaged 30 3 in terms of tenth-normal sodium hydroxid, with the highest figure at 86 0 and the lowest at 4 0

4 The free acid (seventy-nine cases) averaged 15 6, with figures ranging from 74 5 to 0

5 The pepsin concentration as measured by the Mette method was determined in seventy-nine cases, and gave an average[18] of $(3\,3)^2$, highest $(6\,7)^2$ and lowest $(0\,0)^2$

6 Trypsin was tested for in sixty-three cases, with an average of 5 2 units, ten cases gave 16 units, and fifteen no reaction Thus in 23 8 per cent of the cases there was no evidence of trypsin

7 Microscopic examination revealed on no occasion gross food residues On several occasions vegetable debris was found, but never meat fibers Leukocytes, in considerable number, were found almost constantly, and occasionally swallowed material from the throat with bacteria

COMMENT

In eighty-one cases the average volume of the gastric residuum of normal women was 49 44 c c This quantity is greatly in excess of the generally accepted limit of 20 c c, and very close to the average value of 52 14 c c obtained from over 100 cases of normal men[8] The range of volumes was likewise extremely wide (from 12 to 135 c c), similar to the range of from 23 to 160 c c obtained by Fowler, Rehfuss and Hawk[1] Hence in regard to volume there appears to be little or no variation in the residuums of normal men and normal women The volumes of the residuums obtained from women were *only* slightly lower than those obtained from men

Decided variations in the color of the residuums of normal women were observed (similar to variations observed in the case of men),[8] 31 9 per cent of the observed cases were colorless, while 68 1 per cent were colored This shows a slightly lower percentage of colorless samples and a slightly higher percentage of colored samples in the case of women than in the case of men (men 43 per cent colorless, 56 per cent colored)[8] Both colorless and bile colored residuums were obtained from the same individual at different times, and even were occasionally obtained during the course of a single aspiration This was especially noticeable after the subject had rolled from one side to the other The color is apparently controlled by the flow of bile through the pylorus into the stomach, rather than as Sartory[19] has suggested by the growth of a chromogenic yeast (*Cryptococcus salmoneus*) This point is being made the subject of an extended experiment in this laboratory and will be reported on in a later paper[20]

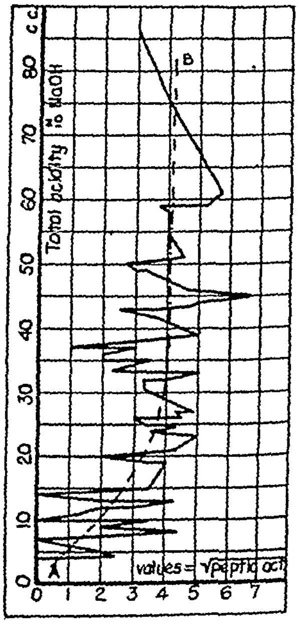

Chart 2 —Relation of pepsin content to total acidity of the residuums

The color is more often seen in cases of high acidity Of the forty-seven colored cases reported, about 85 per cent appear in acidities over 30, while only 15 per cent appear in acidities of less than 30 This would appear further to support Boldyreff's[9] idea of duodenal regurgitation to regulate gastric acidity

The relation of total acidity to free acidity is shown by Chart 1 As in the instance of the previously cited cases of men, free acidity is rarely encountered until the total acidity exceeds 10 In total acidities of over 14 there were no cases in which free acidity was not demonstrable (over 13 5 found by Fowler, Rehfuss and Hawk[1] for men) The greater number of the residuums lie between total acidities of 20 and 60

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[15] Hawk Practical Physiological Chemistry Ed 5 pp 162, 165 166

[16] Rehfuss, M E Bergeim Olaf, and Hawk, P B Gastro Intestinal Studies, II, The Fractional Study of Gastric Digestion with a Description of Normal and Pathologic Curves, The Journal A M A, Sept 12, 1914, p 909

[17] Spencer Jour Biol Chem May, 1915

[18] In this paragraph, the superior 2 (^{2}) indicates the square of the preceding quantity

[19] Sartory Bull Soc de biol, 1906

[20] Fowler Levine and More Unpublished data

(from 25 to 52 for men).[8] A few lie above 60, and considerably more below 20. The average total acidity was 30.3, and the average free acidity was 15.6 (the average acidities in the case of men were total, 29.9, free, 18.5).[8] The range in total acidity for women was found to lie somewhat higher (from 86.0 to 4.0) than it was found to lie for men (from 77.6 to 2.4),[8] and the same was true for free acidity, women, (from 74.5 to 0), men, (from 65.8 to 0).[8] Only two cases were above 70 in total acidity.

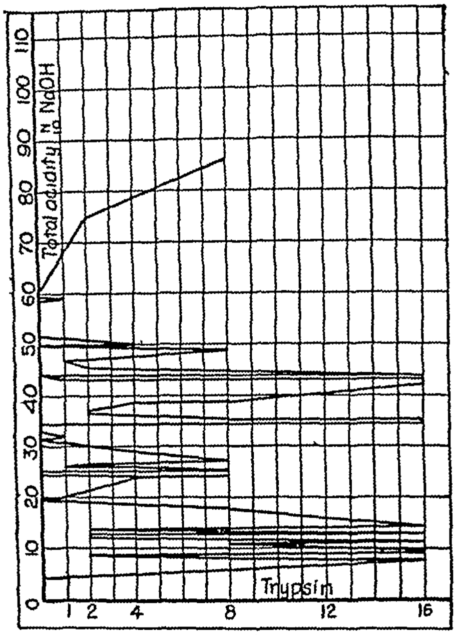

Chart 3.—Relation of trypsin to total acidity of residuums

In regard to acidities, and also volumes, it is worth mentioning that we have noticed at various times during our investigation a remarkable constancy in the volume and total acidity of residuums from the same person collected at widely different times. This point is worth further investigation.

Pepsin was tested for in every case studied but two, and was found in all cases tested, except three of low acidity. The average value[18] of peptic activity was $(3.3)^2$, somewhat higher than the value of $(2.8)^2$ obtained for men.[8] The highest value was $(6.7)^2$, compared to $(5.0)^2$ for men,[8] and the lowest were $(0.0)^2$, men[8] $(0.7)^2$.

In the case of women the same relationship between the quantity of pepsin and total acidity for low acid values is seen (Chart 2) as was observed in the case of men.[8] This view is contrary to that of Pawlow,[21] who asserts that no such relation exists. This relationship is likewise seen to disappear as high acid values are reached, more or less supporting the view of Gregersen[22] who states that the relation of pepsin to hydrochloric acid is not an absolute one. In none of our cases were we able to demonstrate the presence of pepsin in the absence of total acidity. Aliprandi[23] asserts that pepsin may occur in the absence of hydrochloric acid, and also that there is no strict parallelism between pepsin and hydrochloric acid.

The trypsin content of the gastric residuum of women was determined in sixty-three cases. Our results do not bear the striking similarity to the trypsin content of the gastric residuum of men[8] (only twenty-six cases determined) that the volumes, total acidities, free acidities and pepsins do. Charts 3 and 4 show the relation of trypsin to total and free acidity, respectively. From these charts the relation of trypsin to free acidity is not as evident as it was in the work on men.[8] Furthermore, several cases of low acidity were obtained in which there was no trypsin or only a little, while one case, the acidity of which was over 70, presented a trypsin content of 8. In the case of men,[8] a content of trypsin equivalent to 16 was not found above a free acidity of 20, several were found between 20 and 30 in the case of women. Of the sixty-three cases examined, fifteen, or 23.8 per cent., contained no trypsin as compared to 7.7 per cent. in the case of men.[8] An average value of 5.2 units was obtained for trypsin in the cases of women, as compared to 9.1 units for men.[8] This and the previously mentioned differences may constitute a fundamental difference between the residuums of men and women, but we are inclined, for the present at least, to consider these differences to be due mainly to the smaller numbers of cases examined in the work of Fowler, Rehfuss and Hawk.[1] This can be settled only by a more extensive investigation.

SUMMARY

1. No striking differences between the gastric residuums of normal women and of normal men have become evident during the course of this investigation.
2. The accepted limit of 20 c.c. for the volume of the residuum of the empty stomach of normal women is too low. An average volume of 49.44 c.c. was obtained in eighty-one cases.
3. Both colorless and bile-colored residuums may be found. The two may occur in the same individual on different days or during the same aspiration.
4. The colored residuums are found more frequently in higher acidities. This is explained, as before, by the greater frequency of regurgitation in higher acidities.

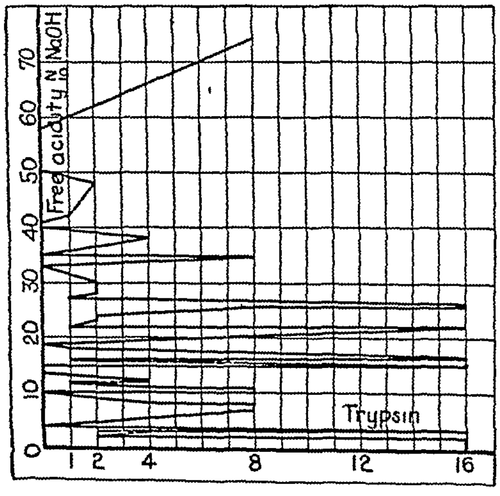

Chart 4.—Relation of trypsin to free acidity of residuums.

5. Total and free acidity vary directly with each other, free acidity rarely being found with a total acidity of less than 10, and always being found when the total acidity was greater than 14.
6. Two cases were observed in which the total acidity was greater than 70. In general, the total and free acidities of the residuums of the women subjects

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[21] Pawlow: The Work of the Digestive Glands.
[22] Gregersen: Arch. f. Verdauungskr., 19, 263.
[23] Aliprandi: Lavor. riv. chem. micros. clin., 1, 230.

observed run higher than those of the men subjects reported by Fowler, Rehfuss and Hawk.[1]

7. The definite relation of pepsin to acid in low acid concentrations has been confirmed. Also, this relation is seen to disappear as high acid values are approached.

8. The trypsin content of the gastric residuums obtained from women was shown not to bear the striking inverse relation to the free acidity that was demonstrated to be true in the case of residuums obtained from men.[5] This is thought to be due to the larger number of samples examined in the present investigation, and not to be due to any fundamental difference in the residuums of men and of women.

ABSOLUTE DIABETES WITH RETURN OF FUNCTION

REPORT OF A CASE *

C. D. CHRISTIE, M.D.
CLEVELAND

By an absolute diabetes is meant one in which the patient so afflicted is not able to utilize any carbohydrate which is taken in the food or any of the sugar which is yielded from protein metabolism. There is no very good evidence that fat is converted to sugar in the diabetic. All diabetics of the severity of this case, it is reasonable to assume, have no deposits of glycogen in their tissues. The only two sources for sugar, then, would be that which was fed to the patient and that derived from the breaking down of the protein molecule. Each 6.25 gm. of protein which is utilized in the body is represented by 1 gm. of nitrogen excretion. Practically all nitrogen is eliminated through the kidneys. Since fats are not converted to sugar, and since there are no glycogen deposits in the tissues, it is readily apparent that any sugar which is excreted in the urine of a starving diabetic must come from the protein. If the total nitrogen output and the total sugar output are determined for twenty-four hours and the former divided into the latter, it will give the ratio of dextrose to nitrogen excretion or the amount of sugar which is derived from the utilization of 6.25 gm. of protein. We know experimentally that each 6.25 gm. of protein taken into the body will yield 3.65 gm. of sugar; therefore a patient who is excreting 3.65 gm. of sugar for each gram of nitrogen in the urine is an absolute diabetic, or cannot utilize the sugar which is derived from the body protein.

A dextrose to nitrogen ratio of 3.65 : 1 occurring in diabetics was termed the "fatal ratio" by Lusk.[1] Certainly a better terminology could not have been given the condition. Practically all of the patients who have been reported who have shown this "fatal ratio," have died. Greenwald,[2] Foster,[3] Geyelin and Du Bois[4] have reported cases in which there has been subsequent return of sugar tolerance. In none of the three cases just cited was starvation employed during the entire course of the high dextrose to nitrogen excretion. In the case I am describing, starvation was practically continuously adhered to from the time it was started, until the patient became sugar free. I feel confident starvation was the factor which shortened the course of the "fatal ratio" period in this case, and without its aid our patient would doubtless have succumbed to his severe diabetes combined with the infection which he had with acidosis. After a brief critical period of four days, the patient was free from all severe diabetic symptoms. The starvation was not a hardship for him. Besides, from fear of the danger of starvation, he never complained after the second day of the prolonged fasting.

REPORT OF CASE

History.—D. M., man, aged 26, white, carpenter, was first admitted to Lakeside Hospital, April 8, 1915, and was discharged three weeks later. His complaint at that time was extreme weakness and dull aching pain across the lower portion of his back. There was no history of any other member of his family having been afflicted with diabetes. The past history was negative aside from measles when a child. The present trouble dates back to April, 1913. While engaged in some light work the patient suddenly became very weak and was unable to continue. He immediately went to see a doctor who told him he had sugar in the urine. He remained away from his work for a short time and was cautious with the food he ate; he immediately felt much improved and resumed his regular duties. For six months he remained comfortable. He then commenced to have excessive thirst, increased urine output, persisting weakness and gradual loss in weight. Since that time his condition had been variable; some days he felt good and other days he was totally incapacitated, depending on how closely he adhered to his diet. During the last three months, the patient had been having numerous boils and pains in his back and legs.

Physical Examination.—The patient impresses one as not possessing average mentality; he talks at random and asks countless questions during the day. He is a well developed man but extremely poorly nourished. His weight prior to the onset of this trouble was 156 pounds; he now weighs 125 pounds. He is extremely weak and prefers to lie on the bed. His actions and movements are those of a senile man. There is a very marked sweetish odor to the patient. Skin and mucous membranes are dry and parched. There is a bright scarlet hue to the skin about the face and neck; he looks as if he were sunburned, but has not been exposed to the sun. Nothing abnormal was observed from an examination of the eyes and eye grounds or the nose and ears. The teeth are in moderately good condition, but there is a marked pyorrhea alveolaris. The tonsils are small and show no signs of infection. Heart, lungs and abdomen are normal. Reflexes are slow and sluggish in response, but there are no other abnormal findings from the neurologic examination.

The Wassermann reaction is negative on blood and spinal fluid.

Urine examination shows 97 gm. of sugar in the twenty-four hours. The acetone and diacetic reactions are very distinct.

During the patient's stay of three weeks in the hospital it was not possible to get his sugar output below 45 gm. in the twenty-four hours by strict dieting. He was feeling much better, however, and insisted on going home, so he was discharged.

During the time from his first admission to the last one with which we are interested, nothing more was heard of the patient until he presented himself to our dispensary, Jan. 14, 1916. He was promptly admitted to the hospital.

Record of Last Admission.—D. M. was admitted to the medical service for the second time Jan. 14, 1916. His complaint at this time was a severe cold and a boil on the back of his neck, both of which developed about one week before. Since his discharge from the hospital April 21, 1915, his condition had been variable, a part of the time he was able to work. He volunteered the information that his diabetes was better and his only trouble was the cold and boil.

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* From the Department of Medicine and the Laboratory for Medical Research of Lakeside Hospital and Western Reserve University School of Medicine.

[1] Mandel, A. R., and Lusk, Graham: Diabetes Mellitus, THE JOURNAL A. M. A., July 23, 1904, p. 241.

[2] Greenwald: Jour. Biol. Chem., 1913, **16**, 393.

[3] Foster: Deutsch. Arch. f. klin. Med., 1913, **110**, 501.

[4] Geyelin, H. R., and Du Bois, F.: A Case of Diabetes of Maximum Severity with Marked Improvement, THE JOURNAL A. M. A., May 13, 1916, p. 1532.

The most striking things about the patient which had not been so noticeable at the previous examination were a greater degree of emaciation, and an appearance of being extremely sick In addition to the findings of the former examination there was a carbuncle about 4 cm in diameter on the left side of the patient's neck It had the usual multiple openings, and there was a slight amount of purulent discharge It was extremely red and swollen, with pronounced induration, there was only a moderate amount of pain in connection with it The patient had a slight elevation in the pitch of the percussion note, with higher pitched breath sounds over the upper right posterior portion of the lung No rales Aside from these noted facts there was nothing made out in addition to that described in the previous physical examination

Jan 15, 1916, the patient was started on a test diet in the morning This diet consisted of 16 gm of nitrogen and 50 gm of carbohydrate Twenty-four hour urine started at 7 a m There was a distinct "acetone odor" to the patient's breath His respiratory rate was 25 to the minute but he was wide awake and did not appear to be in any immediate danger of coma

January 16, the patient was still on the test diet, and was eating every particle of food served him There was a daily elevation of temperature to 101 F His condition was apparently worse than the day before, but there was nothing evident to explain why it should be

January 17 the patient was started on starvation He was being given 180 c c of whisky daily, black coffee as desired, and 30 grams of sodium bicarbonate every four hours by mouth The general condition was much the same as the day before

January 18 starvation was continued The patient was considerably worse The tension of carbon dioxid in the alveolar air had dropped to an alarming figure The respiratory rate was averaging around 25 He was more drowsy than he had previously been, and he was taking very little interest in things about him We considered the advisability of terminating the fast and giving sodium bicarbonate intravenously

January 19, starvation was continued The patient seemed better, there was a slight increase of the carbon dioxid tension

January 20 on account of the demands of his friends he was given a small amount of food He was much better he seemed much wider awake and said he felt better The whole carbuncle area had sloughed out, leaving the muscles of the neck exposed The area now measured about 6 cm in diameter Nothing was being done for it except hot dressings at frequent intervals and keeping the area clean

January 21 the same amount of food was given the patient as the day before He was much better, but the sugar in the urine had apparently struck a constant level and would not diminish The small amount of carbohydrate had apparently lowered the dextrose to nitrogen ration However, it is a question in my own mind whether the 10 gm of carbohydrate which the patient received was absorbed in his blood stream as dextrose It was given in the form of greens, and they appeared in the stool unchanged Had they not been utilized the dextrose to nitrogen ratio would have been 2 6 1 on these two days instead of the figure given in the table

January 22 the patient was again started on starvation He was improving rapidly so far as his general appearance was concerned The tension of carbon dioxid was gradually coming up

January 24 starvation was continued, as it had been the day before General condition was much better The patient complained very little because food was not given him

January 25 starvation was continued It will be noted that there was a sudden drop in the protein metabolism the day before as indicated by the nitrogen output Although the dextrose to nitrogen ratio continued nearly the same the diminution of protein metabolism was looked on as a good omen

January 26 the patient was much improved The sugar output and dextrose to nitrogen ratio had dropped very decidedly Starvation was continued There was a sudden rise in the dextrose to nitrogen ratio of the preceding day This perhaps was due to the fact that the patient ate a small amount of oatmeal which he took from another patient's tray It was dry oatmeal without cream or sugar, and attendants on the ward thought he obtained a very small amount

January 27 starvation was continued The sugar output and dextrose to nitrogen ratio had both come down very decidedly

January 28 the patient had but a trace of sugar in the urine in the morning and it was decided to start food immediately He was given 10 gm of carbohydrate in the form of 5 per cent vegetables and 25 gm of fat This amount was divided into six feedings for the day The patient was decidedly improved The alveolar carbon dioxid tension was back to approximately a normal figure The area on the patient's neck was much improved granulation tissue was beginning to form with great rapidity, and there was very little discharge

January 29, the patient's urine became sugar free His food was increased to 20 gm of carbohydrate and 50 gm of fat

February 1 the urine remained sugar free, the patient was taking 30 gm of carbohydrate Total food intake was 1,440 calories, of that amount about 500 calories were derived from whisky

February 8 the urine remained sugar free The patient was taking about 1 950 calories daily

February 16 the patient's condition continued to improve There had been only a trace of sugar in the urine on two occasions There was an acetone reaction still persisting in the urine The patient was now taking 45 gm of carbohydrate daily, or a total intake of 2 390 calories There was some slight discharge from the neck, but granulations had largely closed in the area

February 25 there was sugar in the urine on two successive days his tolerance was exceeded He was given a starvation day which promptly eliminated the sugar from the urine He was now taking 2 500 calories daily

February 28 he had remained sugar free since the instance just recorded He had been having a daily rise of fever since the day of admission It had varied usually never exceeding 101 F Today was the first day he was free of fever The physical signs had not varied in the lungs We were fearful of a tuberculosis and that the prolonged starvation and undernourishment might revive it If that were the case, however, we were not able to demonstrate any alteration in the lung condition

March 5 1916 The patient had been free of fever since February 27 There had been a trace of sugar in the urine on a couple of days since February 25 The area on the neck was covered by a small scab there was no discharge The physical signs in the chest were just the same as they were on admission He was now taking carbohydrate, 60 gm, protein, 55 gm and fat 225 gm or a total intake of 2 500 calories The patient was quite comfortable and wanted to go home consequently he was discharged and referred back to our dispensary

Methods of Study—For the total nitrogen determinations the Kjeldahl method was employed Ammonia estimations were made by the simple titration method potassium oxalate, formaldehyd and tenth normal sodium hydroxid being used These results were occasionally checked by the Folin aeration method Sugar was determined in the blood and urine by the methods of Benedict The carbon dioxid tension in the alveolar air were practically all made with the Fridericia instrument but an occasional determination was made with the Haldane apparatus Acetone and aceto acetic acid were estimated together by the method of Folin and Hart

COMMENT

1 The condition of absolute diabetes has been one of considerable interest since the pioneer work on the subject was recorded by Minkowski[5] This observer discovered that when the pancreas was completely removed from a dog whether the animal was fasted, fed with a diet of protein or on protein and fat that it would excrete 2 8 gm of sugar in the urine for each gram of nitrogen As the animal was glycogen free,

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[5] Minkowski Arch f Exper Path u Pharmakol 1893 **31**, 85

and fat in no way affected the ratio, Minkowski concluded the sugar could come only from the protein. Other experimenters did not agree with the results of Minkowski at that time, as they claimed their results showed a variable D: N ratio. More recent observations, however, have largely confirmed the truth of Minkowski's work, showing that the maximum diabetes which can be produced from a complete pancreatectomy produces a dextrose to nitrogen ratio of 2.8: 1.

More recently Lusk and Stiles[6] (working with diabetes produced in animals by the subcutaneous injection of phlorizin) found that the ratio as established by Minkowski did not represent the maximum dextrose to nitrogen excretion which is obtainable. Phlorizin acts by mobilizing all sugar which is deposited as glycogen in the animal body, and causes it to be excreted through the kidney. Subsequently phlorizin is able to prevent any more sugar from being deposited in the tissues as glycogen. When an animal is being so treated, it rapidly becomes free from all deposited glycogen, and the sugar excretion strikes a constant ratio to the nitrogen output. This ratio was found to be 3.65 gm. of sugar to 1 gm. of nitrogen. As 6.25 gm. of protein (when completely utilized by the body) leaves a residue of 1 gm. of nitrogen to be excreted, it is apparent that there is available from 6.25 gm. of protein 3.65 gm. of sugar, or about 59 per cent. of the protein molecule is converted to sugar in the animal body.

These results were later confirmed by Mandel and Lusk,[7] working with severe human diabetes. Their patient was kept on a diet of fat and protein, and soon the urine showed 3.65 gm. of sugar to each gram of nitrogen. This condition existing in the diabetic was termed the "fatal ratio" by Lusk, as he believed no patient showing such a proportion of sugar output to nitrogen excretion could recover.

The Lusk dictum has generally held true until the establishment of the starvation treatment for diabetics. There were just two instances of absolute diabetics to my knowledge who were treated prior to the institution of starvation treatment and were apparently relieved by our previous methods. These two cases were reported by Foster[3] and Greenwald.[2] The subsequent course of their patients was not recorded. Up to two years ago the fact that only two cases of survival from complete diabetes were reported confirmed the truth of Lusk's dictum, under former methods of treatment.

Since the adoption of starvation treatment, however, Geyelin and Du Bois[4] reported one case of recovery from the "fatal ratio" with subsequent return to a fair degree of sugar tolerance. This case in many respects was very similar to that of the patient under discussion. In both instances the sugar tolerance was reduced in potential diabetics to approximately the least level by acute infections. The two showed return of sugar tolerance to approximately the same degree.

As indicated in the table, the patient whose case I have reported showed a dextrose to nitrogen ratio of 3.93: 1 on one instance and as low as 1.27: 1 on another instance. However, the average of dextrose to nitrogen excretion for the entire thirteen day period was 2.5: 1. On the two days on which he received 10 gm. of carbohydrate in the form of greens, it will be observed that the ratio dropped below 2: 1. I do not believe that the carbohydrate was converted to sugar in the patient because the greens appeared in the stool unchanged in a very brief period. If they were not utilized as sugar, the patient's ratio was 2.6: 1 on these two days, which would be quite consistent with the ratio on other days.

The results on these two days also give very good presumptive evidence that fat is not converted to sugar in the diabetic, for on both days the patient was supplied with 25 gm. of fat, and if it had been converted to sugar, the dextrose to nitrogen ratio should have been greater, whereas it was lower.

2. This patient showed a very great increase in nitrogen metabolism which persisted for the first nine days of his stay in the hospital. It will be noticed that on the tenth day the nitrogen excretion fell off very markedly and never at any later period showed an increase. On the second day of the test diet, however, when the patient was getting a very liberal supply of nitrogen in his food (16 gm. daily), he excreted 8 gm. in excess of his intake. This shows that he was using 50 gm. of his own body protein besides the amount which was taken in the diet. On the second day of starvation the nitrogen excretion was the greatest of any day while the patient was fasting. It was on this day that the patient's condition was at its worst, the tension of carbon dioxid reached its lowest point, and the acetone and diacetic acid excretions were the greatest for the starving period.

Excess nitrogen excretion has been observed many times in severe diabetes. Numerous authors have described cases which showed many times greater excretion than this patient. The most interesting thing, however, was the subsidence of the excess elimination of nitrogen in this patient when he was in the period of "fatal ratio." The causative factors of excess nitrogen excretion in the diabetic are not clear. It cannot be explained by the fact that the patient had an infection with fever. Both of the latter factors persisted long after the excess nitrogen excretion subsided. Neither can it be explained from the failure of this patient's body to utilize carbohydrate or from excess fat metabolism, for both of these conditions were constant during the period of excess nitrogen excretion and afterward.

Von Noorden[8] attributes excess protein metabolism in diabetes to some toxic substance which is retained in the body. It appears that such a possibility could have existed in this case. The few days of starvation which preceded the subsidence of excess nitrogen elimination might have been sufficient to allow the patient by some mechanism to eliminate a supposed toxic material.

3. The carbon dioxid tension of this patient was very low on admission, and it went down decidedly during the first two days of starvation. After the second day of starvation the tension gradually mounted and reached a perfectly normal figure by the time the "fatal ratio" had disappeared. It is also interesting to note that on the day the carbon dioxid tension reached the lowest level, the nitrogen, acetone and diacetic acid excretions were the greatest. These factors are doubtless related to each other. On the same day the patient's general condition was distinctly worse, he appeared toxic, his respiratory rate was 25 to the minute, and he was decidedly stuporous. There was grave fear that if starvation was continued the patient would go into coma. We considered terminating the fast and giving the patient more alkali. It was not

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[6] Lusk and Stiles: Am. Jour. Physiol., 1913, **10**, 67.

[7] Mandel and Lusk: Deutsch. Arch. f. klin. Med., 1904, **81**, 479.

[8] Von Noorden: Diabetes, 1905, p. 114.

done, however, and on the following day the patient was in much better condition, and as the alveolar carbon dioxid tension had come up slightly, there was more encouragement to continue the fast From this time on the carbon dioxid tension gradually rose, and the patient's general condition was quite commensurate with it

4 The excretion of acetone bodies fell off markedly on the first day of starvation, and continued at a low level until the fast was terminated, and finally disappeared from the urine after the sugar tolerance was established Unfortunately, beta-oxybutyric acid determinations were not made in this case, but doubtless it follows the same course as its companions, by disappearing from the urine as the carbohydrate tolerance is gradually raised The reduction of these acid bodies *in the urine promptly with the institution of* starvation, has been one of the particularly illuminating points which has been brought out by our recent methods for the treatment of diabetics It will usually be found that there is a prompt reduction of the daily excretion of acetone, diacetic acid and beta-oxybutyric acid when the diabetic is cut off from the external supply of the precursors of these acid bodies, namely, fat and protein However, they will persist in the urines of these patients as long as they are living on a diet of fat and protein to the exclusion of carbohydrate food During starvation, of course, the only food the diabetic receives is that which is obtained from the body tissues, and since they are all largely glycogen free, it is apparent that they are living chiefly on a diet of fat and protein They will, then, of necessity excrete varying quantities of acid bodies This excretion of acetone, and diacetic and beta-oxybutyric acids will continue until such time when the patient is eating and assimilating enough carbohydrate food to prevent their formation The amount of carbohydrate necessary to prevent the formation of acid bodies varies with different patients In most patients 75 gm of carbohydrate are required to insure the complete combustion of fat and protein, but some diabetics have been observed whose urine remained free of these acid bodies to crude tests on 30 gm of carbohydrate daily

5 Another method which we formerly employed to determine the degree of acidosis was the ratio of ammonia excreted in the twenty-four hour urine to the total nitrogen output This case showed what in former times would have been considered an alarming figure, but it will be noticed that the same percentage was eliminated day after day, some time after the patient recovered from the acidosis, so far as the carbon dioxid tension was concerned Our former view in regard to the excretion of ammonia in acidosis as a protective mechanism is not tenable in the light of our present knowledge It will have to be explained on some other basis It certainly is of little service as an index to acidosis

6 This patient was starved eleven full days The only food taken during that time is enumerated in the table He had 180 c c of whisky daily, black coffee as desired, and on two days 10 gm of carbohydrate and 25 gm of fat This, I believe, is the longest period any patient has been starved to render the urine sugar free It might have been possible to make this patient's urine sugar free by alternate starvation days, but after all I think in this instance that fasting as employed was the safest and quickest method Had we delayed, doubtless the patient's infection would have advanced very rapidly, and perhaps the acidosis would have increased just enough to throw him into coma As it was, the sudden withdrawal of substances which were producing acid bodies in his system (namely, fat and protein) was sufficient to avert coma, and quite sufficient to allow him to recover from his acidosis before the fast was terminated

Diabetics of an extreme degree should never be starved without constant watch being kept on the tension of carbon dioxid in the alveolar air There is no satisfactory method for the measurement of acidosis aside from carbon dioxid determinations Methods requiring body excretions are inaccurate, and are usually not available when needed Carbon dioxid determinations can be quickly made, and will give instantly the condition of the patient These patients may go extremely acid with great suddenness

Irreparable harm may be done by such long starvation periods in the diabetic It may be the cause of lighting up an old tuberculous process, or so reduce the patient's nutrition that the body would be an easy prey to any infection But this question must be

LABORATORY DATA

Date	Urine Volume C c	Reaction	Acetone Diacetic Gm	Total Nitrogen Gm	Ammonia Nitrogen Gm	Ammonia Percentage Total Nitrogen	Total Urine Sugar Gm	Blood Sugar per 100 C c Gm	D N	CO₂ Tension mm Hg	Weight Kg	Diet			
												Carbohydrate Gm	Protein Gm	Fat Gm	Whisky C c
1/15/16	3 400	Acid	3 33	18 5	5 8	31	108 8	363	3 18 1	24 5	50 9	50	100		
1/16/16	1 450	Acid	2 90	24 2	7 3	30	108 3	400	2 4 1	6 1	50	50	100		
1/17/16	1 700	Acid		13 4	3 8	28	52 7	400	3 93 1	23 2	50	Starvation			180
1/18/16	2 100	Acid	1 80	15 9	4 5	28	39 9	342	2 51 1	20 7	50	Starvation			180
1/19/16	2 190	Acid	91	10 5	3 9	37	34 3	503	3 27 1	22.6	49 8	Starvation			180
1/20/16	1,890	Acid	1 30	12 2	4 3	35	34	337	1 97 1	26 6	49	10		25	180
1/21/16	2 550	Acid		14 1	5 1	36	33 1	308	1 6 1	24 1	49 1	10		25	180
1/22/16	3 430	Acid		12 6	3 7	30	33 6		2 77 1	30 6	48 8	Starvation			180
1/23/16	2 650	Acid		11 3	3 4	30	29 9	400	2 64 1	31 1	48 4	Starvation			180
1/24/16	1 800	Acid	80	6 8	2 1	31	18 9		2 77 1	35 2	48	Starvation			180
1/25/16	1 900	Acid		8	2 7	33	26 6		3 32 1		48 2	Starvation			180
1/26/16	1 155	Acid	60	5 3			9 3	237	1 75 1	37	49 1	Starvation			180
1/27/16	1 050	Acid		4 1	1 5	36	5 2	285	1 27 1		49 8	Starvation			180
1/28/16	1 900	Acid		7 5	2 6	34	Tr			36 8	50 9	10		25	180
1/29/16	1 600	Acid	1 03	5 1	1 4	27		190			51 4	15		50	180
2/ 1/16	2 000	Acid	89	4 9	1 0	21					50 4	30		100	180
2/ 8/16	1 850	Neut	Tr								50 8	40	65	175	
2/16/16	600	Neut	Tr								48 2	45	65	200	
2/25/16	1 790	Neut	Tr	9 44	1 36	16	12 5				49 3	50	55	225	
3/ 5/16	1 800	Neut									50 8	60	55	225	

Patient ate small amount of oatmeal that he took from another patient s tray settled by the exigencies of the case at hand Certainly this patient was not harmed

7 Another curious thing about this case[1] was the fact that the scales did not show that he lost any weight during the entire starvation period There are great variations in these daily weights I have no means of proof as to their accuracy, as they were taken as a matter of routine in the ward, but I believe they are correct I think the fact that he did not lose weight can be accounted for on the basis of water retention It was on the day of January 28 that the patient gained 2½ pounds This was also the day the patient became sugar free We all noticed on the following day that the patient looked edematous He did not have an edema, but there certainly was an increase to the volume of his body Previously his face had been drawn and shrunken, but on this day his face was full and gave the impression of a decided gain in weight

Since the patient's discharge from the hospital he has been seen only occasionally His condition had been variable Certainly he is not any worse than he has been for the last year or two He is a very unsatisfactory individual to manage, never being willing to cooperate except in one's presence

SUMMARY

1 In the case reported, the sugar tolerance of a patient with a potential diabetes was reduced to approximately the least level for thirteen days by an acute infection Later the patient had return of a moderate degree of ability to utilize carbohydrate

2 There was a great increase in nitrogen excretion for the first nine days, on the tenth day it fell off decidedly, and never was again excreted in excess

3 The patient was distinctly acid on admission, but became decidedly more acid during the first two days of starvation, as shown by determinations of the tension of carbon dioxid in the alveolar air Although the patient was starved for eleven days, the acidosis gradually became less and less each day, until by the end of the fast the tension of carbon dioxid was back to practically a normal figure

4 Acetone and diacetic acid excretion dropped very decidedly during the first day of starvation, and completely disappeared from the urine when the patient was utilizing 60 gm of carbohydrate daily

5 The patient was excreting approximately 30 per cent of nitrogen in the form of ammonia during the period when he was most acid, as the acidosis improved, the percentage of ammonia to the total nitrogen output remained the same

6 The body weight of the patient was practically the same at the termination of the starvation period as it was in the beginning

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Moving Picture Health Car—In North Carolina the state board of health has an automobile fully equipped with a light and moving-picture outfit, with which moving picture health shows are given throughout the state in cities and towns, at county fairs and other gatherings, in churches, halls, tents or out of doors Any series of twelve towns may have the benefit of the outfit, which is provided with a mechanician and a lecturer, for a period of three weeks, the show being given in each town one afternoon or evening of each week, and the program being changed each week The towns are required to provide at least $90 for the expenses of the first week, and the remainder is furnished by the state board The subjects are not all health topics, but comic or other pictures are interspersed The entertainments are popular and their educational value is said to be high

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ANKYLOSIS OF THE JAWS*

CHALMERS J LYONS, D D Sc
ANN ARBOR, MICH

In his work on orthroplastics of the temperomandibular articulation, Murphy classified the ankylosis which occurs in and about the temporomandibular articulation under four heads (1) intra-articular bony ankylosis, (2) intra-articular fibrous ankylosis, (3) subzygomatic cicatricial fixations, and (4) intra-alveolar buccal fixations

The only part of this subject which I shall consider at this time is the first division of Murphy's classification, intra-articular bony ankylosis, or true ankylosis While this affection is not rare, there have been comparatively few actual cases with results reported, and the work done along this line, and reported in medical or dental literature, is by no means extensive

For the purpose of clearer statement, let us review briefly the temporomandibular joint Owing to the character and location of this joint, it is particularly susceptible to traumatism and infection When the complex mechanism and environment of this joint is considered, it can readily be seen that an injury, or an infection in it, or a combination of the two, is far from being amenable to normal repair[1] In the temporomandibular articulation, the socket is formed partly by the mandibular fossa and partly by the articular eminence, and over the latter, an approximately congruent surface for the head of the condyle is formed by the articular disk The two temporomandibular articulations act simultaneously When the mouth is opened, the head of the condyle with the interarticular disk glides forward on the articular eminence, and when the mouth is closed, it slips back into the mandibular fossa The opening and closing of the mouth are consequently attended by a sliding of the mandible (a gliding joint) In addition to this modified form of hinge movement, the articulation possesses a second kind of motion, viz, the lateral displacement of the mandible in reference to the skull In this movement, one condyloid head remains in the mandibular fossa, and rotates or pivots on a center, while the other advances on the articular eminence, a movement which is impossible when the mouth is opened to its greatest extent Both the hinge and lateral movements are combined in the act of mastication Thus an inquiry or an infection involving this joint is much more complex than the same lesion would be involving a joint less intricate, and the process of repair is consequently much more complicated

ETIOLOGY

What causes intra-articular bony ankylosis of the jaw? The two sexes are about equally affected, and this seems to be an affection into which sex selection has no controlling influence

It has been my own observation, as well as that of others, that the predisposing age is from 1 to 10 years, that is, that the largest percentage of patients who come under our observation present a history of injury or infection in the early ages Orlow found that ankylosis was established in 80 per cent of his patients between the ages of 1 and 10 years. Blair states that "the age at which ankylosis became established varied considerably, but in the great majority of cases, when the age was given, it was under 10 years." The primary causes for ostearthritis, or bony ankylosis, seem to be traumatism and infection. There seems to be some diversity of opinion as to which of these etiologic factors should be assigned first place. Orlow states that in about 30 per cent of his cases, injury to the joint was the cause of bony ankylosis. Blair asserts that "by far the most common single cause was trauma, this accounting for nearly 50 per cent of all cases. The great majority of these injuries were not open wounds, and by far the most common form of injury was a blow, or a fall on the chin." Others believe that infection is the greatest etiologic factor in the affection, and some believe that in every case of trauma which seems to cause ankylosis, infection is a secondary factor of no mean importance.

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* Read before the Section on Stomatology at the Sixty Seventh Annual Session of the American Medical Association Detroit, June, 1916

[1] Sobotta and McMurrich Human Anatomy, W B Saunders Company

My own observation has been that trauma has been at least the primary cause in by far the largest number of cases presented in our clinic. Authentic statistics in this regard cannot be procured readily, owing to the fact that the large majority of these patients are not seen until long after the condition is established. Sometimes several years elapse before surgical interference is resorted to, so that a complete history in such cases is not wholly reliable. The diseases which play a part in causing ankylosis of the jaws are scarlet fever, otitis media, dento-alveolar abscesses, diphtheria and gonorrhea. It may also result from a metastasis, from foci of infection within the mouth, or elsewhere in the body. The presence of the beginning of ankylosis of the mandible during childhood appears logical when we consider that accidents and many of the infectious diseases to which it is due are more prevalent during the early period of life. The onset and development of ankylosis of the jaws is very insidious and slow, several years often being occupied in the production of lesions of any considerable extent. Usually the patients complain more of the disability which is caused by the affection than of any actual physical discomfort which it occasions. The general health of patients who are afflicted is usually little impaired. Digestive troubles seem to be the principal factors outside of the joint lesion, owing, undoubtedly, to the impaired function of mastication.

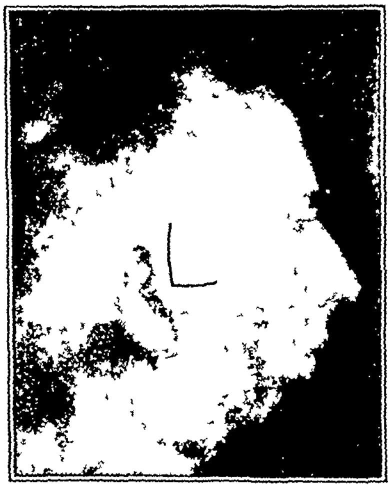

Fig 1.—Course of the incision.

PATHOLOGY

In case of violent injury to the joint, ankylosis is usually brought about by the proliferation of fibrous tissue into or around the region of injury.

Should the articular cartilages be preserved in whole or in part, they sometimes undergo direct metaplasia into fibrous tissue or fibrocartilage, or into mucinous tissue, which gradually becomes fibrous. In many of these cases the fibrous tissue is trifling in amount, and the ankylosis is produced mainly by cartilage and bone. In some cases the ankylosis is due to cartilage and bone intermingled. Immediately following a dislocation or intracapsular fracture, or a contused wound to the joint, there is more or less abundant hemorrhage into the joint. Later, inflammation sets in. The capsule and surrounding parts become swollen and edematous, infiltrated with inflammatory products. There is an effusion into the synovial cavity. Portions of the coagulum may persist and become organized, forming osseous tissue in the joint. When an infection is the predominating etiologic factor, there is produced a synovitis with effusions into the joint cavity. These infections may be purulent, and chronic synovitis results. The joint synovium becomes thickened in the early stages, while the surface of the cartilage is rough and fibrillated. Marked inflammatory changes are induced in the subcartilaginous marrow spaces and the cartilage is destroyed. Milen believes that the degeneration of the cartilage is due to some interference with nutrition, or is produced by the extension of the exudate which destroys the cartilage. Adami[2] states that the resorption of the cartilage is brought about by the subchondral medullary substance. In the early stages not all of the cartilage may be destroyed, but there may remain islets of cartilage throughout the articulating surfaces. These islets may in time be converted into bone.

Thus the cartilages are gradually transformed into a vascular fibrous or fibro-osseous tissue. The joint cavity is traversed by dense fibrous bands, and is converted into a number of small spaces, bounded by dense fibrous tissue, and containing synovial fluid. In the advanced stages, the whole of the articular cartilages may disappear and be replaced by fibrous tissue, so that the original structure of the joint becomes well nigh unrecognizable. Secondarily, changes take place in the newly formed fibrous tissue, and in time it is converted into a mass of spongy bone, and complete osseous ankylosis results. It seems to be a characteristic phenomenon of cartilage that it is more or less interchangeable with fibrous tissue in the joints. It has been observed that when a joint cartilage is becoming atrophied, it becomes calcified, or transformed into a fibrillated structure, closely resembling fibrous tissue, while perichondrial fibrous tissue commonly becomes changed into typical hyaline cartilage. The deeper layers of the cartilage may also proliferate, forming nodules of hyaline cartilage or bone.

The greatest metaplasia, however, is found in subcartilaginous inflammatory process, where, as a rule, there is a great tendency to the formation of cartilage and bone. Thus, in an inflammatory condition of the temporomandibular articulation, either by traumatism or by infection, there is a marked susceptibility to metaplasia, with the result that the normal structure finally may become obliterated and a new structure results.

Characteristics of the Disease.—On account of this disease occurring in the joint, and having its incipiency in early childhood during the period of growth, the normal development of the mandible is considerably interfered with, so much so that it is marked by a conspicuous facial deformity. This deformity is characterized by perceptible recession of the chin This may be due to the action of the geniohyoglossus muscles in their constant efforts to open the jaws There is also a general atrophy from disuse of all the tissues of the lower jaw, including the mentalis and quadratus labii inferioris muscles The deformity may be so exaggerated as almost entirely to obliterate the chin Usually when the ankylosis has been established on one side in early childhood by trauma, and the disease has slowly progressed until the normal structure of the joint has become obliterated and the jaws closed, the opposite side also will be more or less affected on account of the disuse of the joint

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[2] Adami: General Pathology, Philadelphia, Lea & Febiger.

DIAGNOSIS AND TREATMENT

The differential diagnosis in the character of the ankylosis is not a complex problem In fibrous ankylosis, even though the adhesion is quite firm, there will be some movement, especially lateral movement in the jaws In bony ankylosis, the only movement which can be observed is the very limited movement of the elasticity of the structures involved There can be no lateral movement in the lower jaw in intra-articular bony ankylosis

The treatment of intra-articular bony ankylosis consists in surgical measures Forced separation of the jaws will avail nothing The surgical procedure consists in establishing pseudarthrosis, either in the site of the true joint or below it Esmarch, in 1855, suggested an operation for intra-articular bony ankylosis by the removal of a wedge shaped section of bone, with base downward, three-quarters inch long, from the horizontal portion of the mandible This did not prove satisfactory on account of the disturbance of the normal action of the masticatory muscles which followed Konig, in 1878, introduced the operation of resection of the mandibular head The results were unsatisfactory on account of the possibility of a recurrence

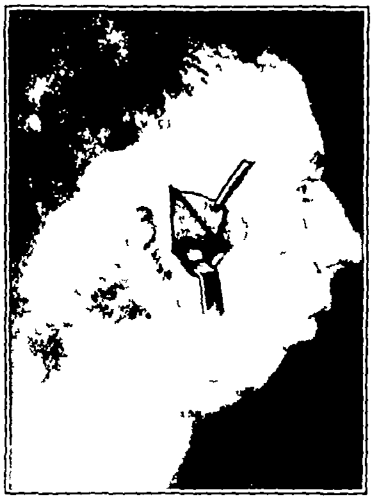
Fig 2—Exposure of the joint.

Brophy[3] states that he has obtained very satisfactory results by removing a crescent shaped section of bone from the region of the angle of the jaw He places gutta percha between the ends of the bones which prevents the freshened ends of the bones from uniting The gutta percha is allowed to remain for a period of six weeks, after which the wound is reopened and it is removed During this time, it is asserted that a well organized membrane is formed which seems to form the intra-articular tissue

The operation which has been very satisfactory in my experience is the operation similar to the one reported by Lilienthal,[4] in which a section of bone is removed from the condyle

Technic of the Operation—Beginning about 5 mm in front of the tragus of the ear, a horizontal incision is made through the epidermis and superficial fascia along the lower border of the zygoma, extending anteriorly for a distance of about 3 cm A vertical incision is then made through the epidermis and superficial fascia, extending upward from the point of beginning about 4 cm, running just in front of, and parallel to the ear (Fig 1) The epidermis and superficial fascia are now dissected up to form a flap The underlying tissues containing the branches of the seventh nerve and also the superficial vessels are pushed aside by the use of retractors and blunt dissectors until the joint and a portion of the condyle is laid bare (Fig 2) Great care must here be exercised that the zygomatic and temporal rami of the facial nerve are not torn in the effort to expose the bone

After the neck of the condyle has been cleared of the tissues by blunt dissection, a full curved aneurysm needle is used for the purpose of guiding a steel ribbon $^{3}/_{1000}$ inch in thickness and 1 cm in width, back under the condyloid neck (Fig 3) This is for the protection of the internal maxillary artery in removing the section of the condyle The section is removed by the use of the mastoid chisel, taking out about 1 cm of the bone, including the periosteum Then a flap of superficial fascia is elevated from the temporal muscle and interposed between the ends of the condyle, and sutured with catgut sutures The wound is then closed with horsehair

After the excision of a portion of the condyle, as indicated, has been accomplished, on one side, an attempt should be made to open the mouth If the jaws cannot be opened, the same operation should be resorted to on the opposite side, when of course the jaws will be free No attempts should be made to stretch the jaws or hold the mouth open until partial repair of the soft tissues has been obtained After about the fifth day, my treatment has been to begin opening the mouth by the use of a graduated mouth gag The patient will experience considerable pain at first, but the mouth should be opened until there is at least a space of 2 cm between the opposing cuspid teeth When this space is obtained, the graduations on the gag are noted and the gag placed in the same position in the mouth and opened to the same degree, four or five times each day Each time the gag is inserted, it is left in position for a period of five minutes This treatment of stretching the jaws should be maintained for several weeks, the patient doing this himself, after being properly instructed

Dangers, Disadvantages and Complications of the Operation—One of the greatest dangers involved in the operation is that of infection Owing to the close proximity to the hair line, there is a greater possibility of infection either in the wound at the time of operation, or subsequently, than in wounds of like nature elsewhere on the skin surfaces Therefore the greatest precautions must be exercised that everything connected with the operation should be absolutely sterile and that extra precautions be taken in the subsequent dressings of the wound, that infection be warded off An infection in the wound may ruin what would otherwise be a successful operation

Necessarily after repair has taken place, there is more or less cicatricial tissue at the point of operation, which leaves a scar and sometimes more or less of a depression at the point of the false joint, but this, in my opinion, is of secondary importance The dangers

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[3] Brophy Oral Surgery the Diseases Injuries and Malformations of the Mouth and Associated Parts Philadelphia, P Blakiston's Son & Co

[4] Lilienthal Ann Surg, August, 1911

to be encountered in the operation are, first, the inability of the anesthetist to control the tongue during the administration of the anesthetic Some cases are on record in which tracheotomy had to be resorted to during the operation Second, danger of injury to the temporal rami of the seventh nerve, whereby paralysis of the orbicularis oculi muscles may follow Another danger to be encountered is injury to the internal maxillary artery This vessel lies directly in the field of operation, and must be protected in some manner in removing the segment of bone in the process of forming the new or false joint This may be accomplished by retractors, Murphy's periosteotomes, or any other instruments which may be easily inserted between the artery and the neck of the condyle I believe that the steel ribbon which I have described is superior in the simplicity of its application, and effectiveness, to anything which has been called to my attention

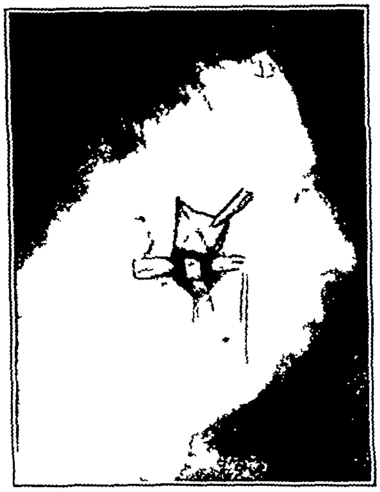

Fig 3—Insertion of steel ribbon

CONCLUSION

It might be stated that, outside of the dangers enumerated, this operation is comparatively free from serious complications or sequelae The patient begins the mastication of his food in about ten days to two weeks following this operation The movement of the jaws prevents the formation of too much fibrous tissue between the two ends of the bone, and after repair is completed, it will be found that the tissue which had become atrophied begins to take on a more nearly normal condition The patient takes on weight, the general health and appearance improve and he again resumes confidence in himself The correction of ankylosis of the temporomandibular articulation is an operation which not only gives great satisfaction to the patient, but also is one which is very gratifying to the operator

ABSTRACT OF DISCUSSION

Dr H A Potts, Chicago These results of injuries and infections are really more common than the general practitioner seems to think Quite frequently we see, in large clinics, patients who present the same appearance as this one The diagnosis as to the form of ankylosis is very important, and judging from the experience of previous operators and the conditions found at operation the operation here described is certainly of the type which is best suited to the bony ankylosis The dissection of fibrous bands and the treatment of the various classifications as given would permit of other treatment but the bony ankylosis is best treated Dr Lyons is to be congratulated on the result in this case which if the patient does his part will avoid a further complication or even lessening of the space already gained

Dr Chalmers J Lyons, Ann Arbor, Mich Of course in these cases the patients must do their part They are instructed to keep constantly stretching the jaws These instructions are very important More can be accomplished by this stretching than by anything else, doing it several times a day, to keep the space already gained This man has gained a little more space by this exercise

Dr Potts If you put the index finger on the upper teeth and the thumb on the lower teeth, you can get a good deal of force in stretching

Dr Lyons That is a good suggestion These exercises must be kept up continuously In these cases, if nothing is done, there is a great tendency for the ankylosis to recur

CALCIFIED HEMATOMA *

FREDERICK C KIDNER, M D
Fellow of the American College of Surgeons
DETROIT

Interest in the occasional development of bone masses in and beneath muscle following trauma has been great, especially since the Roentgen ray has made possible their clear demonstration The condition has commonly gone under the name of myositis ossificans traumatica, because it has been believed that damaged muscle is actually changed into bone Other names have been suggested depending on various theories of origin, for example, calcified hematoma, based on the theory that the blood clot following an injury becomes calcified, and periosteal callus, on the theory that the growth is merely misdirected callus formation The best known theories so far put forward are, first, the hemic theory (Sadeler) This theory supposes that the hemorrhage following an injury to muscle is first transformed into cartilage which later ossifies Second, that the tumors are aberrant sesamoid bones (Bard) Third, the theory that the growths result from bits of periosteum detached and included in the muscle Fourth, that the fibrous tissue of the muscle undergoes a true metaplasia into bone Fifth, that the bone develops from cells disseminated from the periosteum through the hemorrhage All these theories have warm supporters and antagonists

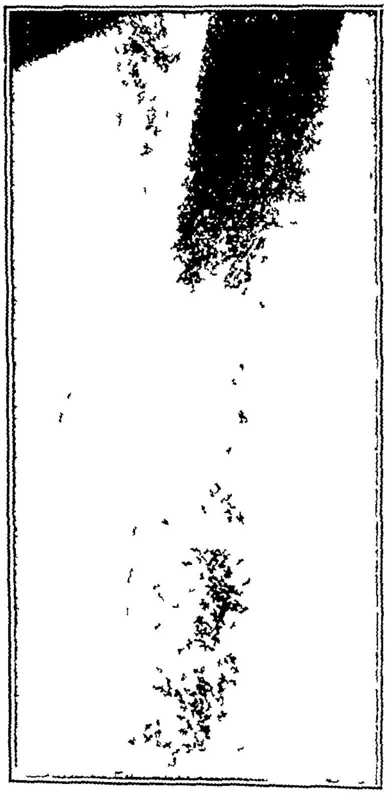

Fig 1—Before operation

The best discussion which has come to my attention of the surgical and pathologic aspects of this condition

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit, June 1916

is that published by Fay[1] He favors the combination theory in which both the periosteum and the fibrous tissue of the muscles take part

Much of the confusion as to the origin of these growths is due to the fact that sometimes the bone mass is attached to the periosteum, and that sometimes it lies within the muscles without periosteal connection, most commonly in the brachialis anticus or the quadriceps This difficulty is easily overcome by the assumption, which I believe to be a reasonable one, that there is always, at some time, a direct connection with periosteum which may or may not be absorbed or broken off by muscular action In support of this assumption is Coley's[2] statement that recurrence can best be avoided by covering the periosteum with a fascial graft

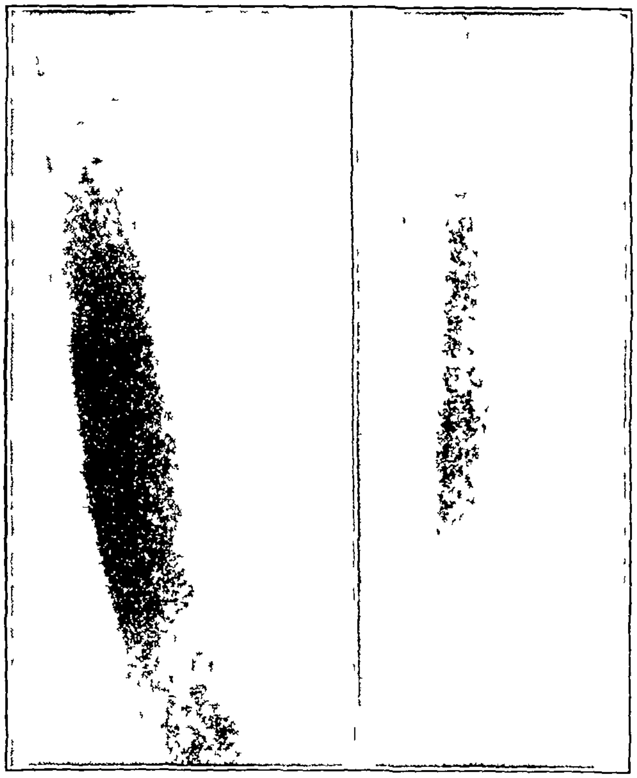

Fig 2 —Present time

The following case aroused my interest in the subject, and is, I believe, worth reporting in the hope of shedding a little more light on the causation of the condition

W B, vigorous schoolboy, aged 16, was without disease or family taint Five weeks before he was seen, March 21, 1916 he was kicked on the front of the thigh during a basketball game There was immediate pain and stiffness, but he continued the game Next day pain was rather severe and he was forced to limp Pain gradually passed off but the stiffness did not decrease, and for the past two weeks had been increasing Examination showed a slightly tender, hard mass involving the middle third of the front of the thigh The muscles moved over it to a certain extent, but flexion of the knee was possible to only about 15 degrees, a severe pulling sensation preventing further motion Probable diagnosis of calcified hematoma was made Roentgenograms taken at the time showed a long mass with the character of bone, lying close to the front of the femur, to which it was attached at one point

The possibility that the mass was sarcomatous made exploratory operation advisable This was done, March 22 An incision, just in front of the iliotibial band, at the outer side of the growth, was carried through the fascia lata, and the muscles separated by blunt dissection A mass of vascular new bone was found, surrounding the anterior half of the middle third of the femur Anteriorly it was firmly adherent to the vastus medius by many torn and partially destroyed muscle fibers which issued from the bone substance These anterior attachments were easily separated and the bone found to be firmly adherent, at about its middle, to the surface of the femur With considerable difficulty the mass was pried loose and removed At the point of adhesion to the femur was found an area one-half inch in diameter, where the bone was denuded of periosteum The perimeter of this denuded area was made up of much thickened and edematous vascular periosteum with ragged edges The thickening gradually decreased in all directions for a distance of three-quarters inch, at which point the periosteum became normal

Feeling convinced that the mass originated from the periosteum at this point, the denuded area and the edges of the thickened periosteum were carefully covered with bone wax in the hope of preventing further overgrowth The specimen was sent to Dr C R Meloy of Grace Hospital to whom I am indebted for the microscopic slides The patient made an uneventful operative recovery and was about in ten days Two weeks later he had about 45 degrees of motion in the knee and was rapidly gaining more motion At that time he sustained a severe wrench, whereupon the stiffness promptly reappeared, and there was very marked induration of the deep tissues of the front of the thigh, which closely resembled the original growth Since, this has gradually disappeared and motion is constantly increasing The roentgenograms taken at present show that the growth has been stopped and that the remains of it are absorbing The microscopic sections taken from various parts of the new bone are of

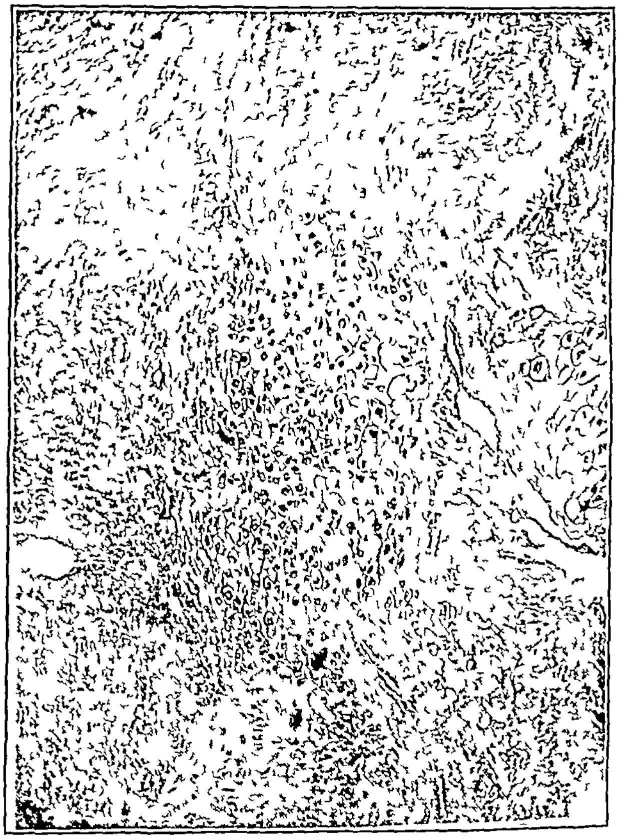

Fig 3 —Cartilage formation

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[1] Fay, O J Parosteal Callus, the So Called Myositis Ossificans Traumatica Tr West Surg Assn 1913 p 174

[2] Coley, W B Myositis Ossificans Traumatica, Ann Surg, 57, 305

extreme interest, in that they show all stages of bone formation The whole mass is surrounded by a fibrous tissue capsule, in the meshes of which can be seen partially destroyed muscle fibers These are scattered all through the growth From this capsule cartilage is growing, as is bone There are areas of transformation of cartilage into bone, and areas of fibrous tissue undergoing myxomatous change with a substitution of cartilage cells, evidently a direct change in cell character The picture therefore, is that of callus formation originating in the periosteum Everywhere the picture is that of muscle destroyed by an invading growth, rather than muscle changing into bone The muscle bundles are evidently infiltrated and destroyed not actually forming new tissue

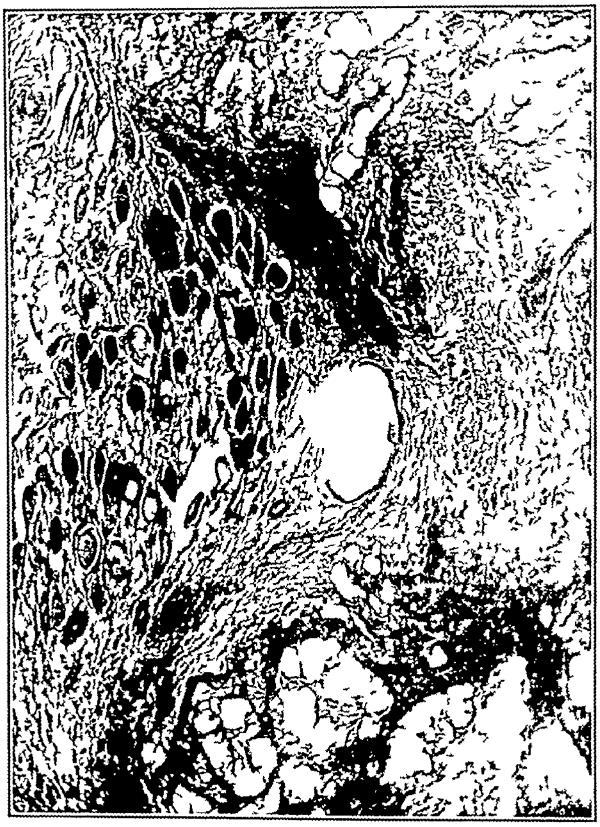

Fig 4 —Muscle surrounded by bone and fibrous tissue growth

Clinically this case is an example of successful operation for the removal of a large and necessarily disabling bone growth The failure to recur I believe to be largely dependent on the use of the protective film of bone wax at the point of periosteal injury Pathologically I believe the course of events to have been something as follows The original traumatism tore deep muscle fibers, and at the same time caused a break in the periosteum From both sources blood was poured out, and immediately deeper layers of periosteum responded to the stimulus of trauma by pouring forth osteoblasts These were free to wander through the mass of hemorrhage, which, in this case occupied only the deepest layers of muscle tissue A delimiting fibrous tissue membrane was formed by the intramuscular fibrous tissue as a preparatory step to the absorption of the blood clot On this membrane and its meshes were deposited the free bone-forming cells, and from all directions bone growths began Had the hemorrhage lain deeper in the body of the muscle or had the tear in the periosteum been smaller, it is easy to see how the connection between the two might have been obliterated within a very short time, and the bone growth have become entirely enclosed within the muscle body Had this occurred, Roentgen rays would have at no time shown connection between the growth and the periosteum, because the connection would have been severed before sufficient calcium was deposited to throw a shadow

Although I realize that the evidence of this case is far from conclusive, its presentation is justified on two grounds, first, because the apparent course of events is so plain and easy to understand, and second, because the theory which it seems to substantiate is a simple one Metaplasia of one tissue into another, even under extraordinary stimuli, is a difficult conception Overproduction of the tissue from its usual source is a simple one

David Whitney Building

ABSTRACT OF DISCUSSION

DR W C CAMPBELL, Memphis I have had two similar cases both of which were infected The first case occurred in a young boy, 9 years of age, who was referred to me for tuberculosis of the hip The roentgenograms showed a ring of bone in the region of the lesser trochanter Stereoscopic roentgenograms showed this ring of dense bone, about the size of half a dollar to be posterior and slightly external to the lesser trochanter and not connected with it in any way There was a sinus running from just below the greater trochanter tortuously through the thigh at the level of the lesser trochanter, opening internally in the perineum Bismuth injection of the sinus brought it out quite clearly I found at operation that there was no connection whatever with the bone There was no erosion, and the periosteum was intact but the condition was of two years' duration, and had followed an injury The result was complete cure, with no recurrence

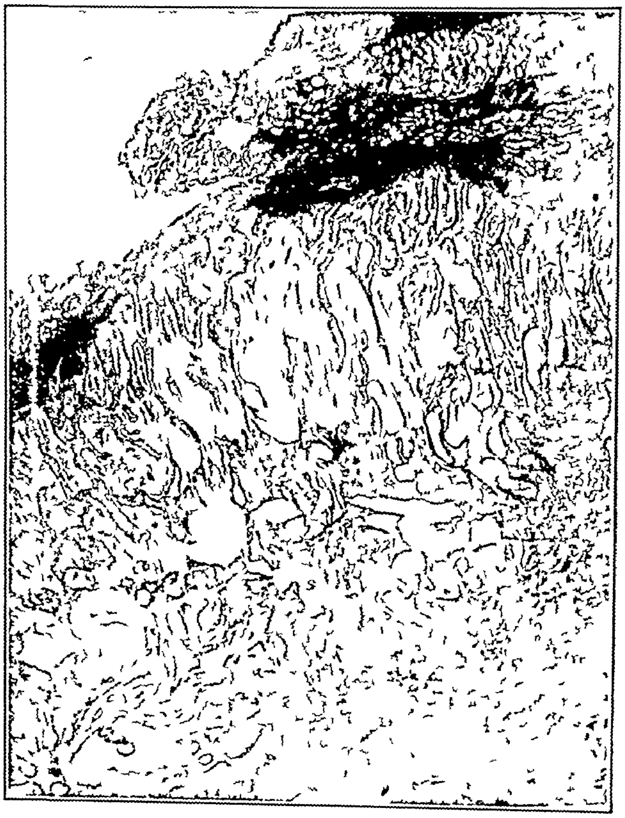

Fig 5 —Bone growing from capsule

after two years The second case was that of a man, aged 30, who gave no history of injury This case was also referred with an erroneous diagnosis of tuberculous knee The knee was red and fluctuating Operation showed an irregular mass anterior to the femur, just above the knee joint The mass was easily removed, and the patient made an uneventful recovery, except that the knee was involved and required further work Microscopically the mass removed was bone and not calcium deposits, as frequently occur in suppurating areas These cases were interesting, because both were infected, one with a sinus, and the other having no sinus

Dr James T Watkins, San Francisco I operated on a youth, aged 16, who, while playing football, had received a kick on the external aspect of the lower end of the thigh He was not more than temporarily discommoded, but later noticed at the site of injury a lump which was painless, but gradually increasing in size He wanted to enter the Naval Academy, but had been told that this deformation would exclude him For this reason he wished it removed So I cut down on the femur and chipped the mass off The muscle was not particularly adherent to it It did not occur to me to cover the cut surfaces as Dr Kidner did so as to prevent a recurrence However, there was no recurrence Microscopically it looked more like cartilage than bone The pathologist reported it to be a mixed cartilage and bone tumor and of a benign nature

Dr J D Griffith Kansas City, Mo These growths occur not only connected with those parts of the body where bones or periosteum are, but also elsewhere On two different occasions I have taken such a growth out of the abdominal muscles These specimens gave the evidence of bone structure My cases seem to show that in all instances the growth is not periosteal

Dr Frederick C Kidner, Detroit In regard to the question of origin of the bone in these unusual growths, I would say that I limited my paper to the purely traumatic cases following on severe injuries Such cases as Dr Campbell mentioned are very often the result of an infection, and the masses consist of calcium deposits, rather than bone I should like to know whether the masses were examined in Dr Campbell's cases

Dr Campbell Yes They were both necrotic bone, and the condition followed injury in one instance

Dr Kidner The element of chronic infection and of irritation enters here, and it is easy to conceive that the periosteum might be healed after the bone mass was formed In regard to the masses in other places, where there is no bone near, I do not think that we know much about them I am not willing to advance any theory on that subject

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Influence of Caffein on Toxicity of Morphin Sulphate—From results recently obtained in experiments on cats and guinea-pigs by C C Haskell and A B Siewers (*Virginia Medical Semi-Monthly*, Dec 8, 1916), it would appear that the employment of large doses of caffein is not devoid of actual danger, and instead of lessening the toxicity of morphin sulphate, really renders the chance of the animal's recovery less probable They do not urge these results as evidence that caffein should not be used in the treatment of poisoning by morphin sulphate or other opium preparations, but that some limit should be placed on the amount of caffein used in the treatment of opium poisoning and that more attention should be paid to removing the unabsorbed morphin and hastening the elimination of that present in the circulation

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A CLINICOPATHOLOGIC STUDY OF EARLY MALIGNANT CONDITIONS OF THE FACE AND MOUTH[*]

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AND
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The great latitude accorded the term "precancerous" has led to its application to a variety of lesions both cancerous and noncancerous For the sake of clearness in thinking it would be well to keep separate those lesions which may ultimately terminate in cancer from those cases which have recently assumed definite malignancy It is of the greatest importance to the patient, however, that a malignant condition be eradicated completely while it is still a local process

The majority of so-called precancerous lesions represent an incomplete or perverted reaction to some form of chronic irritation When the cells of any tissue are injured or destroyed there is an attempt at repair, and the neighboring cells are stimulated to reproduction Normally the development of these cells goes on at a rate equal to or greater than that of the most malignant of tumors, and they soon reach maturity In some cases, however, because of an influence of which as yet we know but little, these cells do not reach maturity but persist in a partially developed state and continue the process of reproduction far beyond the normal limits Thus a group of cells are formed which are not coordinated and correlated with the normal growth processes but are more or less independent of them To these the term "cancer" is applied

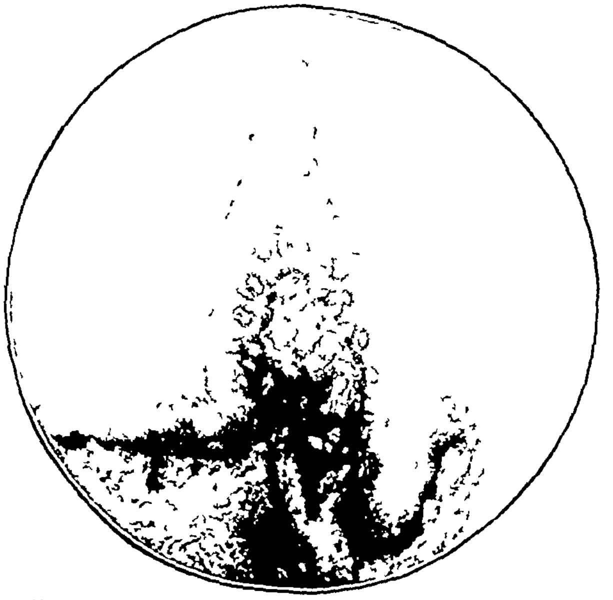

Fig 1—A small papillomatous growth occurring in the mucous membrane of the cheek opposite a jagged tooth in a man aged 50

About the face and mouth, carcinoma arises from one of three types of cell

1 The squamous epithelium of the skin and mucous membrane, giving rise to the epidermoid carcinoma or epithelioma

2 The cell of the hair follicle, giving rise to the hair matrix carcinoma or the often erroneously called basal cell carcinoma

3 The epithelium of the glands associated with the skin and mucous membrane, giving rise to the various types of glandular carcinoma

The most frequent tumor of this region is the epidermoid or squamous cell carcinoma The patients bearing this type of tumor give a history of having some form of lesion preceding the development of the cancer The smoker's burn is one of the frequent initial lesions described by these patients A small blister occurs which may disappear and reform again The histopathology of such burns has been so accurately and completely described by Bloodgood[1] that it will not be discussed at this time

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[*] Read before the Section on Stomatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

In the order of frequency, the next "precancerous" lesion occurs as the result of mild traumatism repeated frequently over long periods of time The irritation of a jagged tooth, or in many patients the habit of holding nails, screws, etc, in the mouth can be discovered in taking the history Other lesions in which carcinoma develops are fever blisters, cracks, fissures, cuts which have refused to heal under ordinary care, papillomas and areas of leukoplakia The last lesion would appear to be a very important one when cancer of the tongue is under consideration, as each of the patients in the seven cases in this series gave a description of the initial lesion as a thickened, hard area on the tongue

While the history of traumatism can be elicited in the majority of cancer cases of this region, and especially those of the lip, there are many lips which have been injured in a similar way and which do not develop cancer In the last eighteen months we have seen two smokers' burns which, after persisting for a couple of months, disappeared and have not returned, and a sore developing in a fever blister which existed for nearly three months and then went away Whether these will return and malignancy develop in them, of course, cannot be said It would appear, however, that there is at work in the development of cancer some factor or factors other than simple injury

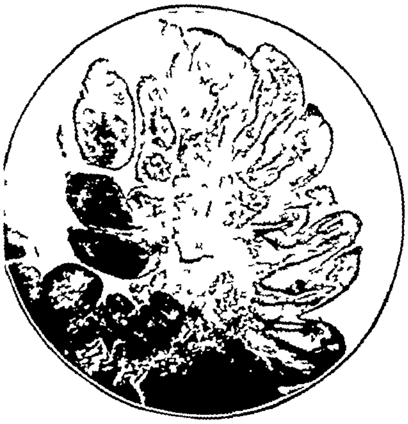

Fig 2—A papilloma on the tongue in a woman aged 27 There was recurrence because of incomplete removal Second excision successful

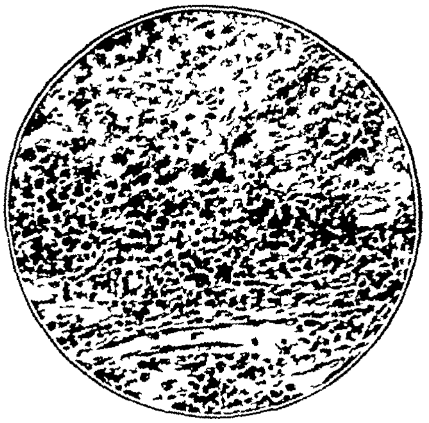

Fig 3—Both an exudative (lymphoid in character) and a proliferative reaction are shown about the invading tumor cells From a specimen of early epidermoid carcinoma of the lower lip

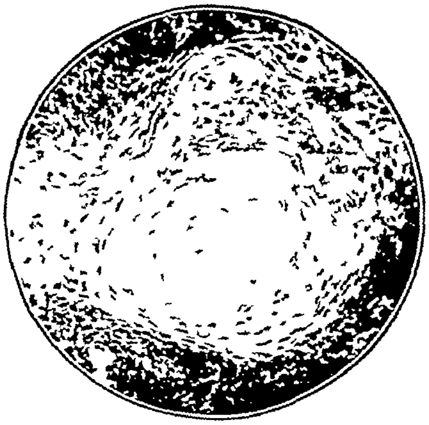

Fig 4—A group of metastatic cells in a lymph node of the neck associated with an epidermoid carcinoma of the lower lip which began in a razor cut Radical operation with no recurrence at the end of the third year Note the cornified mass to which the tumor cells are being reduced

Injuries of the types described do apparently determine the location of the cancer in those individuals in which these other factors are operative Of interest in this connection is the work of Miss Slye[2] She reports that cancer of the oral region is not frequent in mice, even in those strains in which the majority die with cancer Injury to these parts is also infrequent in these animals, whereas it is common in man

These conditions may persist without visible change for some time, but more often they gradually spread and break down, forming an ulcer This is usually of an irregular shape, having rather indurated edges which are not undermined The base is smooth and grayish There is often a thin, irritating discharge Around the edges is a zone of bluish discoloration containing blood vessels This is a picture of a fully established cancer Its persistency is a significant warning, and when such a lesion is found about the face or mouth in a patient over 35 years of age, it should be removed quickly Too much emphasis should not be placed on the age, for each case is more or less a law unto itself For instance, we recently studied a case of carcinoma of the tongue which began in the twenty-seventh year of the woman's life

In the twenty-two carcinomas of the face occurring above the line of the lower lip in the series which forms the basis of this study, twelve were of the hair matrix variety In larger series the proportion of this type is usually greater These tumors take their origin from the cells comprising the hair follicle They usually begin as a subcutaneous nodule After persisting for a variable period they break down and ulcerate They present a tendency to infiltrate widely but not deeply, and seldom produce metastasis A free excision results in complete cure in the vast majority of cases It is in this type of cases, especially those situated about the nose and eyes, that the use of caustics, while often successful, will occasionally render the growth inoperable The location must therefore be taken into consideration in selection of the method of treatment

The tumor cells may be cuboidal, cylindrical or spindle shaped They are characterized by a small amount of cytoplasm and by the fibrils which they produce At times they occur in a densely packed arrangement and, when of spindle shape, resemble a sarcoma quite closely

Occasionally a glandular carcinoma is seen about the face Only one of the type occurred in this series—a mucous gland, adenocarcinoma—arising in the floor of the mouth and extending over to the tongue and involving it

The connective tissue lesions occurring on the alveolar border form an interesting group of tumors usually referred to as epulides The soft or giant cell variety is the one type about which wages the controversy as to malignancy

The misunderstanding which has existed in the past concerning the exact nature of the giant cells found in neoplasms has contributed to this confusion The separation by Mallory[3] of true tumor giant cells from those of the foreign body type found in tumors has cleared the field in regard to the giant cell epulis In the majority of instances, the giant cells are all of the foreign body variety Again, these tumors may be confused with a malignant type of tumor of endothelial origin which exhibits intravascular giant cells and has been reported by Whitman[4] and Ivy [5]

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[1] Bloodgood Carcinoma of the Lower Lip Surg Gynec and Obst 1914 18 404

[2] Slye Inheritability of Cancer in Mice Jour Med Research March 1915 p 193

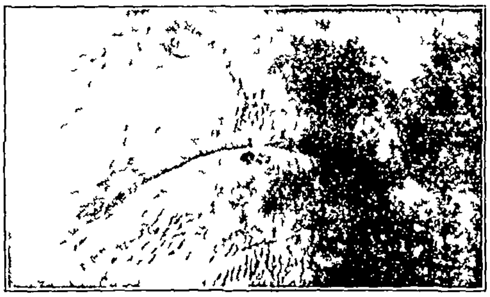

Fig 5—An early epidermoid carcinoma of the lower lip Patient is a plumber who has the habit of holding nails, etc in the mouth

Since these tumors represent forms of lawless growth of connective tissue cells, the important thing is to find out just what these cells are doing The rate of the growth should be ascertained by a histologic study of them, searching for mitotic figures, and determining the degree of differentiation to which they are attaining It should be noted whether these cells are arranging themselves in a position normal to connective tissue, or whether they are atypical in form and arrangement In a word, they should receive the same study as do connective tissue tumors elsewhere, and the diagnosis and prognosis be made accordingly

The prognosis of giant cell epulis, in general, is good, provided careful excision has been made The treatment should consist in a complete removal of the tumor and its point of origin

Several other varieties of the nonepithelial malignant neoplasms occur in connection with the face and mouth Sarcoma is a common tumor of the jaw This tumor may arise from the bone or connective tissue of the region The symptomatology is largely determined by the location and the rate of growth Although they are rapidly growing tumors there is but little pain until they become ulcerated or involve nerve trunks These growths should be excised well beyond the line of visible infiltration If metastasis has already occurred, since it usually takes place by way of the blood stream, the case is hopeless If in the frankly malignant case the growth is still a local process, complete excision will result in a cure

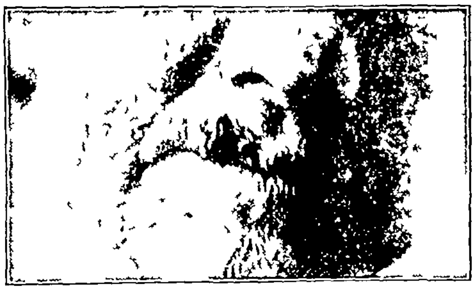

Fig 6—A hair matrix carcinoma of the lip

As the majority of cancers about the face and mouth are malignant epithelial tumors, metastasis to the lymph nodes of the neck occurs rather readily These metastatic groups of cells, however, may remain inactive for a long time and then take on an increased growth rate Only a small percentage of the late cases of cancer give rise to metastasis in distant parts Radical operation therefore, even in cases which present extensive involvement, gives a surprisingly high percentage of cure

Cancer of the face and mouth is comparatively easy of diagnosis and accessible for surgical treatment With this in mind, 3,007 deaths from cancer of the buccal cavity in the United States in 1913 is appalling

It is our desire to emphasize the need for close cooperation between surgeon and pathologist, and that here as elsewhere in dealing with new growths, the important thing, both in treatment and in diagnosis, is a thorough knowledge of the behavior of the tumor cells in the particular case under consideration

The end-results of surgical treatment of malignant tumors of the face and mouth compare favorably with those effected by medical science in the treatment of other disease (not considering, of course, the specific treatment such as antitoxin for diphtheria, etc), somewhere between 60 and 80 per cent of cures The earlier the cases are seen the higher the percentage of cures

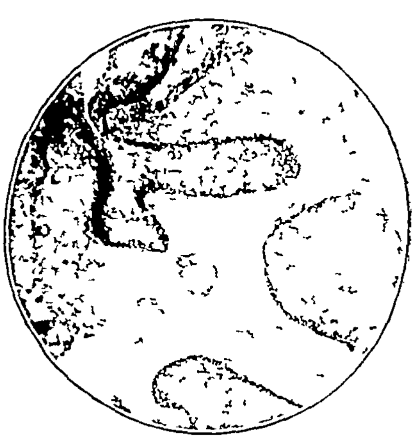

Fig 7—An adenocarcinoma of the floor of the mouth which promptly invaded the tongue

The operative technic in this region has reached a high state of perfection If further headway is to be gained against cancer of the face and mouth, it must be by the education of the public It is the duty of those who see so many cases after it is too late to educate the dentist, physician and the general public concerning these conditions which so often terminate in cancer, and urge the prompt radical treatment of cancer while it is still a local process The responsibility, therefore, rests with the stomatologist, the oral surgeon and the pathologist [6]

ABSTRACT OF DISCUSSION

DR FREDERICK B NOYES, Chicago There was one remark made in regard to the origin of the giant cells about which I know we have had some rather interesting evidence in the last year in the Research Laboratory of the University of

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[3] Mallory Giant Cell Sarcoma Jour Med Research April 1911 p 463

[4] Whitman Giant Cell Endothelioma of the Gums Jour Med Research January 1914 p 465

[5] Ivy, R H Mesothelial Tumors of the Jaws THE JOURNAL A M A Jan 2 1915 p 40

[6] In addition to the references already given the following will be found of interest
Blair Tumors of the Mouth—a Collective Review Internat Abstr Surg January 1916 p 117 (This gives an extensive bibliography)
Forman Some Phases of the Cancer Problem Ohio Pub Health Jour, 7, 21
Hoffman Some Essential Statistics of Cancer Mortality Throughout the World Panama Commemoration Volume Chicago 1915
Means J W and Forman Jonathan Precancerous Conditions of the Face and Mouth Dental Summary, 35, 945 Epulis ibid 36, 494
Tyzzer Tumor Immunity, Jour Cancer Research April 1916 p 125

Illinois The character of the giant cells in the tumors about the mouth is characteristic of origin by fusion of other cells in the region

Dr H A Potts, Chicago The most important thing to be learned from the paper is the great importance of recognizing the possibility of these precancerous lesions The chief thing is to avoid irritation Any wound or abrasion on the mucous membrane of the mouth, lips or face, which does not heal or show a tendency to heal within ten days or two weeks should be looked on as very suspicious, and should not be treated expectantly We have all seen these cases The secret of success in their removal is early and extensive operation to take in all of the growth and metastases as well The chief point is that we must impress on the general practitioner of medicine and dentistry that these very serious abrasions should be looked after immediately and not given any palliative treatment that extends over a period of two or three weeks

Dr F B Moorehead, Chicago In the past there has been an error in the classification of tumors of the mouth, particularly of the mesothelial type A clear distinction should be made between the various forms of benign fibroma, the various forms of sarcoma and the giant cell tumors found in the mouth, which must not be looked on as highly dangerous We may have on the one hand, a giant cell tumor the result of cell fusion, and, on the other hand, a true giant cell sarcoma The giant celled tumor produced by cell fusion is a distinct pathologic entity, and is peculiar to the mouth It is not the same either clinically or histologically as the giant celled sarcoma We have begun the study of these peculiar giant celled tumors in the University of Illinois and hope to have something to say about them at a later date The term "epulis" should be discarded

ANKYLOSING OPERATIONS ON THE SPINE

A STUDY OF TWO SPECIMENS IN THE LABORATORY *

LEONARD W ELY, MD
SAN FRANCISCO

The two specimens described here were removed at necropsy

Case 1 (E 113) —The patient was a child of about 5 years, operated on for spinal tuberculosis by Dr Watkins, with Dr Ely assisting, five months before death The cause of death was pulmonary embolism The operation was a typical Hibbs

The specimen includes six vertebrae, the two lowest thoracic and four lumbar, one of which (the first lumbar) is badly diseased No motion can be detected in the operated portion between the spines, but the bodies move a little on each other

Sagittal Section—The diseased vertebra is crushed into a trapezoid, and its substance is decidedly harder and denser than is that of the other vertebrae, in spite of the fact that anteroposteriorly runs a band of necrotic tissue, so that the two halves (upper and lower) move on each other This rift in the bone communicates posteriorly with a collection of cheesy material which has pushed the posterior common ligament backward into the spinal canal The marrow of the affected vertebra appears yellower than that of the others

The impression one gets in examining the specimen is that too much of the work in the operation has been done above the diseased vertebra and too little below it The laminae of the three lowest thoracic vertebrae and of the first two lumbar are united by bone making of all five a firm bony mass Of the spinous processes themselves there is no trace. The union is interlaminar, not interspinous

Examination of the stained slide, which includes the diseased vertebra and those next above and below it, reveals that the diseased vertebra is in the form of a blunt wedge with the apex forward Its middle portion is worst involved, the diseased area divides the vertebra into an upper and lower portion and the products of inflammation bulge out posteriorly so as to narrow somewhat the lumen of the spinal canal The structure of the diseased vertebra is different from that of the vertebrae above and below It is more transparent, and the contrast between its trabeculae and its marrow is sharper

Histology—The upper and lower vertebrae are normal The marrow in each is lymphoid

The middle vertebra is badly diseased throughout most of its extent A small strip of approximately normal lymphoid marrow runs along the lower margin of the vertebra close to the fibrocartilage The rest of the marrow is badly diseased Much of it is fibrous marrow, very vascular, much of it is tuberculous Necrosis of the tuberculous areas is well advanced Many of the trabeculae are dead, and areas of calcification form a prominent feature The whole middle portion of the vertebra has broken down, and is represented by a transverse band of necrotic material in which are many areas of calcification The trabeculae here show well marked rarefying osteitis and are practically all dead The tuberculous granulations have burst through, have consumed the thin cortex of bone posteriorly, and have formed an abscess beneath the posterior ligament The abscess contains cheesy granulations, with many areas of calcification, many dead bone trabeculae, and one small sequestrum just discernible by the naked eye Communicating with the diseased mass, and anterior to the disk between the diseased vertebra and that above it, is another somewhat smaller abscess cavity containing tuberculous granulations, and much necrotic and calcified material It looks as if it had been formed by the squeezing out of material by pressure on the diseased vertebra The lamina of the diseased vertebra is united to that of the one above it by bone, and this is separated from the next one above it by a very narrow interval of fibrous tissue in which bone is forming The lamina of the diseased vertebra is separated from that of the one below it by fibrous tissue, in which no bone formation is taking place (Evidently at the line of section the band of bony union mentioned above has not been included)

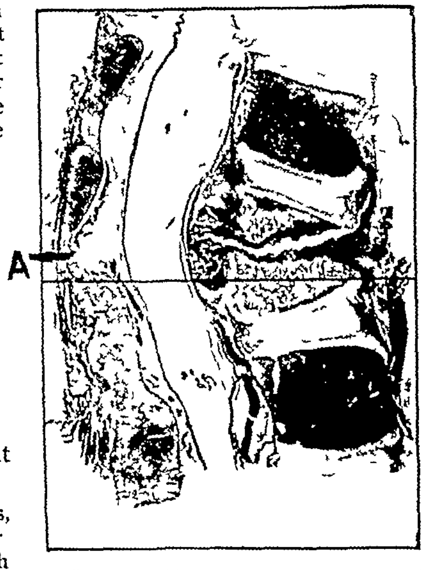

Fig 1 —Hibbs operation Photograph of stained slide showing diseased vertebra between two sound ones Bony union at *A* Natural size

We have then, as the result of the operation, bony union in the operated area, and a tuberculous process still active in the body of the vertebra

This specimen, besides its relation to an ankylosing operation, throws light on a point which has been up for discussion before this section for the past two years You will remember that Mr Fraser maintained that tuberculosis started in the synovial membrane, and that circulating toxins caused the marrow in the adjacent bone to change from lymphoid to fatty or myxomatous marrow, not until then could the disease gain a foothold in the bone From which joint could the extensive involvement of this vertebra proceed? How is it possible that one vertebra could be so badly diseased, while the vertebra on the other side of the offending articulation escapes entirely? Mr Fraser, I believe, has confused cause and effect The fatty and "fibromyxomatous" marrow is not the precursor of marrow invasion, but the sequel If not the only determining factor in the location of tuberculosis in the bone, at least by far the most important one is the presence of lymphoid marrow No lymphoid marrow, no tuberculosis

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* From the Laboratory of Surgical Pathology of Leland Stanford Junior School of Medicine

* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June, 1916

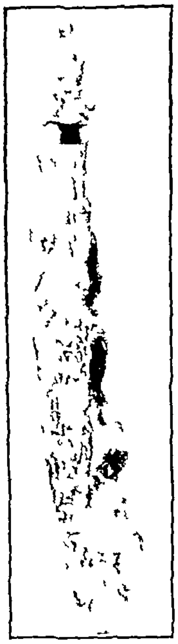

Fig 2 —Albee operation Posterior aspect of specimen showing graft in place

Case 2 (E 127) —Lumbar spine on which an Albee operation had been performed two years previously by Dr McChesney Apparently firm union had taken place A spondylolisthesis was present, accounting for the paralysis of the lower extremities A large cheesy mass was present in the body of the fourth lumbar vertebra, well walled off

Three and a half years previous to death the left hip had been resected for tuberculosis, and about one and a half years later an Albee operation had been done on the spine by Dr McChesney At about the same time the internal genitals had been removed The patient had been admitted to the hospital in coma and died two days after admission Paralysis of the lower extremities was said to have been present for some time

Anatomic Diagnosis at Necropsy (Dr Ophuls) —Tuberculosis of intestinal tract, primary tuberculosis of lymph glands, mesenteric, healed Tuberculosis of spine, lumbar region Operation Albee Tuberculosis of hip (healed) Bronchopneumonia Cirrhosis of liver Adiposity general Liver, fatty Heart fatty Gastritis, chronic

The specimen consists of the spines of the lumbar vertebrae, the last four firmly joined by a thick bridge of bone, the graft The graft is firmly united to each spine, so that its exact limits cannot be distinguished, only a ridge where it joins the spines — an irregularity The soft tissues were firmly attached to the graft as well as to the spines, and their dissection was quite difficult Dr McChesney is strongly of the opinion that the graft has grown in thickness since the insertion Anteroposterior section of graft, and the embedding portion of the spine of first lumbar vertebra were made for study

Section of a piece of the body of the fourth lumbar vertebra, including the wall of the abscess, includes bone and intervertebral disk The bone trabeculae stain very poorly Their margins take the eosin stain well, but not the rest of them The bone marrow is lymphoid and fatty None of it is tuberculous The wall of the abscess is evident—a small fringe of necrotic material, well encapsulated by fibrous tissue The process is in the stage of healing

Histology—The graft appears as a cap of dense bone on the end of the spongy bone of the spinous process The cortical bone of the latter, as well as its trabeculae, are directly continuous with the bony tissue of the former The spinous process shows normal spongy bone with lymphoid marrow, and a rather thin cortex on the sides

The graft at its surface, that is, directly under the periosteum, presents a layer of what is presumably new bone, staining deeply with hematoxylin Its cells can be seen in their lacunae and stain well Here and there blood vessels penetrate this superficial layer, and small blood vessels are present through the graft

Immediately under the superficial layer is a stratum, some of which seems living and some dead In a general way the live bone is immediately adjacent to the haversian canals, and the dead bone fills in the spaces among the haversian systems, but this rule is only a general one The rest of the graft consists of dense bone, whose cells stain fairly well for the most part, though they do not fill the lacunae The marrow is normal fatty No rarefying osteitis is present

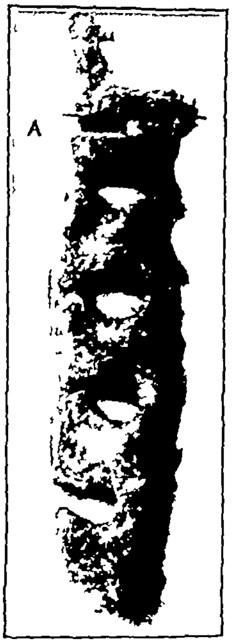

Fig 3 —Albee operation Lateral aspect of specimen the graft on the left with a specimen removed at *A* for study

We have here, then, a firmly united graft after two years, composed of fairly normal bone with fatty marrow, containing blood vessels At the surface is apparently new bone The disease in the body of the vertebra is in the stage of healing

Apparently it is impossible to tell with certainty dead from living bone under the microscope In certain of the slides most of the cells are missing from the lacunae, and the bone might be pronounced dead, but if it were dead it would hardly resist absorption for two years, blood vessels probably would not be seen in its meshes, nor would ordinary fatty marrow be seen in it

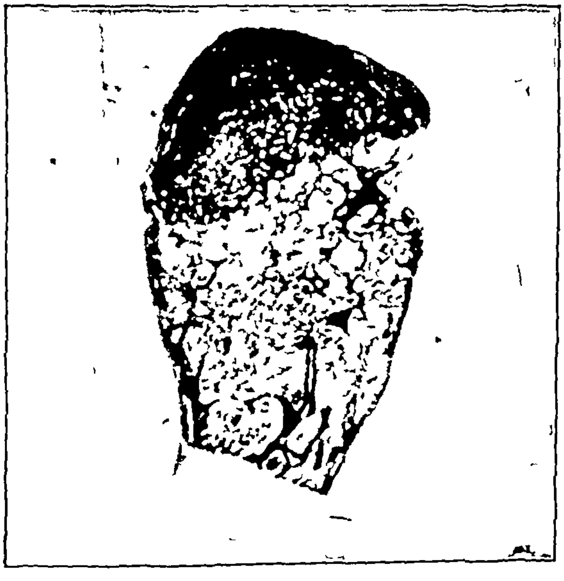

Fig 4 —Albee operation Bone graft in place *The graft appears as a cap of dense bone on the spongy bone of the spinous process* Photograph of the stained slide enlarged four diameters

Besides these two specimens, I have been fortunate in seeing one other secondary operation, and of doing one myself The former was done on account of the persistence of pain and discomfort, and of increase of deformity, following a Hibbs operation The laminae in the area of disease were found fused for the most part, but a joint still persisted in one or two places in the operated area A graft was removed from the tibia and was sewn tightly against the denuded laminae The result is described as satisfactory

The second case was also one in which a Hibbs operation had been attempted, and in which pain persisted and deformity increased The spines were absent, and no indication of union was present among the laminae The vertebrae could be seen to move freely on one another during respiration The treatment was by tibial grafts sewn tightly to the denuded laminae The result ten months later was excellent All symptoms of active disease had ceased, bony union apparently had taken place and the marked kyphosis present previously seemed, by tracings, to have lessened

One other fact needs mention In a rather small experience in spinal ankylosing operations, I have lost two patients on the table In neither was a necropsy done A colleague has recently told me of another fatality

Personally, I am strongly in favor of these operations in spinal tuberculosis, and regard them as curative in a formerly incurable disease, but their dangers should not be minimized I regard my two fatalities as due to the anesthetic, and since the occurrence of the second one have never done the operation without a skilled anesthetist

Lane Hospital

ABSTRACT OF DISCUSSION

Dr Russell A Hibbs New York There is no question that we can get ankylosis of the spine by operative procedure and I have no hesitation in saying that the earlier it is done, the better for the patient Some have said that the patients to be operated on are those who are not doing well Those who have had experience with Pott's disease know that it is very difficult to decide which patients are doing well over a long period, and which are not, and I do not believe that these operations are serious I therefore think it is better to operate, and my associates have done 350 operations without any operative mortality We have always had a good anesthetist, and, as Dr Ely says this is very important Regarding the details of the operation The success of the procedure depends primarily on the dissection What we wish to accomplish is fusion of the bone and not splinting of the vertebrae We must eliminate motion We must, therefore, eliminate the articulation, and hence, we must fuse the bones that participate in the formation of the articulation In the spine we have a large area of perfectly healthy bone to operate on The posterior aspects of the vertebrae are, as a rule, healthy, and may be fused with certainty if a thorough dissection is made at operation

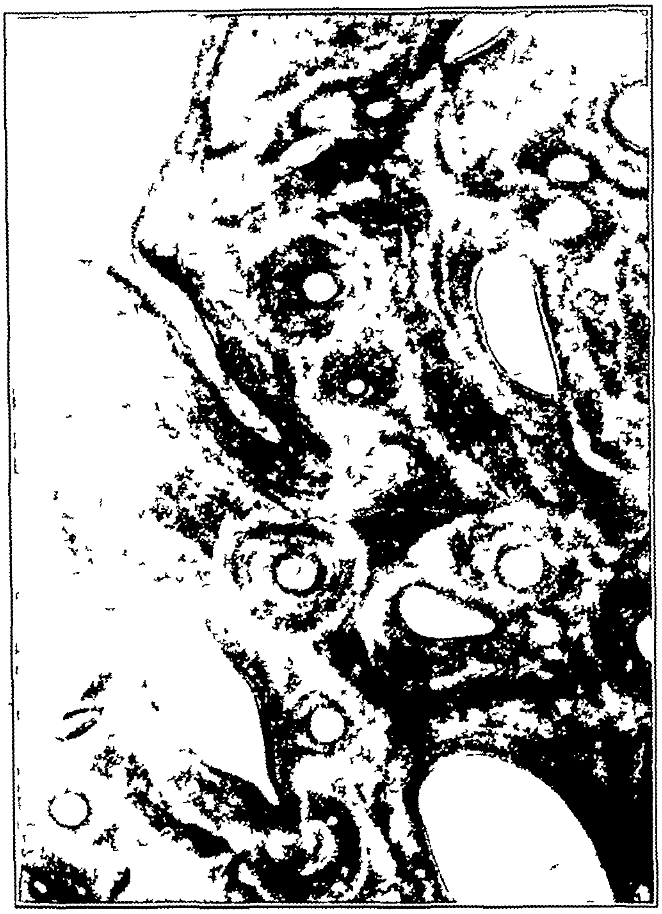

Fig 5 —Albee operation Photomicrograph of portion of graft showing many empty lacunae, and a blood vessel entering the bone Note difference in staining of bone.

Dr Reginald H Sayre New York I have some cases under observation at the present time that show that a bone splint does not under all conditions remain, but sometimes becomes absorbed I have three patients two adults and one child in whom tibial splints were placed by others In the small boy I have had roentgenograms made each month and have been very much interested to note the gradual disappearance of this bone splint. At first the child was purposely left without protection, but later, after six months of watchful watching, he was placed on a board After about a year or so, he got a perfectly good spine, but no sooner than would have been the case without operation The two adults who had been operated on before coming under my observation were unable to walk, except by supporting themselves by placing their hands on their knees, and Roentgen ray examination showed no trace of a bone splint I have no doubt that a bone splint had been put there at some time in the past, because the scars looked as if that had been done, and because the operations were done by gentlemen of experience I have no doubt, also, that it was a well done operation in each case but, for some reason, the bone did not form a bridge as in the specimen passed around by Dr Ely The bone had disappeared, and there was recurrence of the symptoms for which, I presume, the operation was done

Dr James T Watkins San Francisco We have done between fifty and sixty of these operations at the Children's Hospital, approximately an equal number of Hibbs and Albee operations The patients seem to get well with about an equal degree of assurance following either operation I think that on the whole I prefer the Hibbs operation Certainly the Albee is quicker to do Dr Hibbs says that in the specimen being passed around I did not fuse my articular processes However, that is easily explained This refinement of the operation did not appear in Dr Hibbs' earlier publications and I had not heard of it at the time I did this operation Still my earlier patients got well without it This child, you know died of lung condition six months after operation In this specimen most exact fusion between the adjacent spinous processes and between the adjacent laminae has taken place There is no evidence of bony absorption I cannot explain this apparent discrepancy I have had occasion once to operate again on a patient who had been operated on a year previously by the Hibbs method and I have seen the specimen which Dr Sherman removed in another Hibbs case in the course of a laminectomy Macroscopically the spines had been transmuted into a broad, flat, thin plate of bone more nearly resembling a sternum than anything else

Dr Edwin W Ryerson, Chicago It is undoubtedly true that we can obtain bony fusion of the vertebrae by either of these methods The choice of the operation is not on a very well defined basis My own impression is that if I think the patient needs a rapid operation I can do the Albee operation a good deal faster than I can properly do the Hibbs operation The first few of the latter operations that I did were done before I saw Dr Hibbs do this operation, and after I had seen his careful way of doing it I knew why my first two patients did not have as good a result as I thought they should have had I find that in younger children we must protect the spine for a longer time than I at first believed necessary

I have seen, now, a good many of the late results of both the Hibbs and the Albee operations that I have performed A number of the younger children on whom I did either kind have not been protected long enough, with the result that an increase in kyphosis has taken place We should protect such patients for a long time afterward In regard to what Dr Sayre says of the disappearance of the Albee grafts in some of the younger patients, it is not always easy to see in the roentgenogram the shadow of the graft I have cut down in one case in which the roentgenogram did not show the bone, only to find that there was bony ankylosis It was slightly flexible, and the reason the boy was reoperated on was that at the top of the splinted area 3 inches above the diseased area a new focus of tuberculosis had appeared I put in a new graft, going many vertebrae higher The splint in the Albee operation is flexible, in children, and the patient should have protection until it is no longer so How long this may be, I do not know The most striking case that I have had is that of a girl on whom I operated in 1912 A large psoas abscess which she had at the operation has disappeared, and there are no symptoms whatever You can feel a massive bone formation in the spine, from the splint, and the deformity is thought to be less than it was a few months after the operation She had careful conservative treatment by braces for a year before operation, but the condition grew worse She is now completely cured, four years after the operation

Dr J T Rugh Philadelphia One thing about this operation that has impressed me the most strongly is the very low mortality In a series of eighty cases, I have lost but one patient In that case, when I was through, the anesthetist could tell me every step of the operation The patient had died on account of the ether

Dr R A Hibbs, New York We should give these children and adults very careful protective treatment after operation It is a great mistake to assume that you are eliminating the disease so quickly We treat the patients just as if they had not been operated on so far as protection is concerned Children are treated for a year or eighteen months and adults, six months to a year There have been many children whose parents have been disappointed because they were operated on and let go, without proper after-care I want to protest very strongly against that

Dr Leonard W Ely, San Francisco I must differ with Dr Watkins' contention The section is taken approximately directly through the middle, where the base of the spinous process would be, and here there is little, if any, bony union At the side one sees in the gross specimen the union of the laminae When you cut off the spinous process and turn it down, probably that spinous process is doomed Without bringing up this subject of the ultimate fate of a bone that is grafted, I would say that that spinous process may be likened to a man who is dead from some accident, but who, with artificial means of respiration is brought back to life That life cannot be supplied to the spinous process except by contact with another bone or connection with another bone by periosteum What Dr Watkins says about the difficulty of the Hibbs operation I should be inclined to stand by and accentuate Whenever I get an opportunity, I go to see the originator of the operation operate The beauty of the dissection and the carefulness with which Dr Hibbs does the operation seem to be the determining factors in the results obtained

BLASTOMYCOSIS OF THE TONGUE *

GORDON B NEW, M D
ROCHESTER, MINN

Blastomycosis is usually considered a skin lesion or a systemic disease In a review of the literature I have been able to find only one case of blastomycosis of the tongue Copelli[1] in 1913 reported a case of a woman who presented a tumor of the tongue consisting of an aggregation of six rounded nodules on the back part, with some enlargement of the submaxillary glands She presented also blastomycetic lesions on both feet Examination revealed the blastomyces in the affected tissues The treatment used and the end-results are not stated in this case I wish to report a case of blastomycosis of the tongue examined in the Mayo Clinic

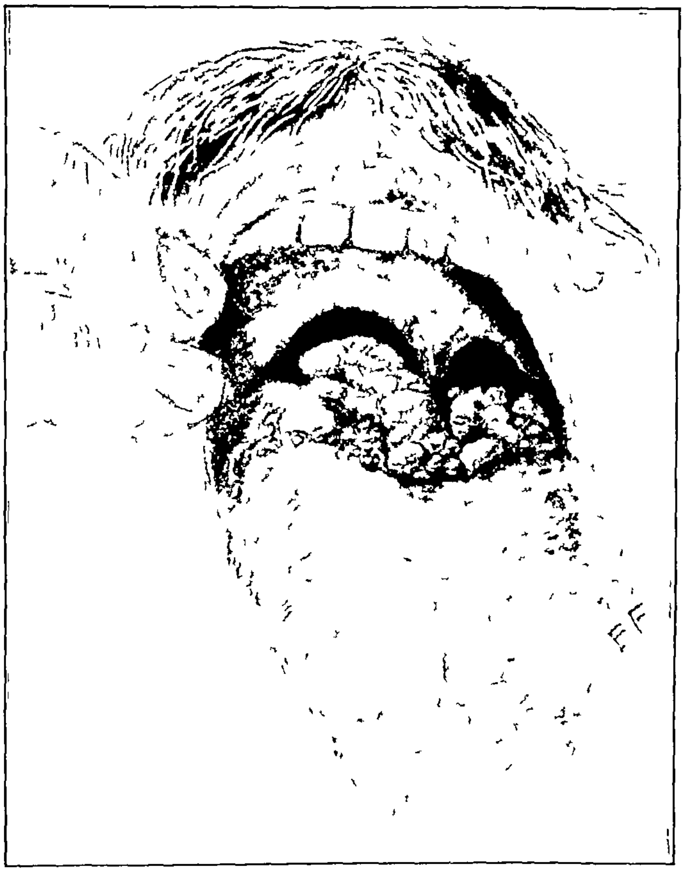

Fig 1 —Blastomycetic tumor of the tongue

J S M man, aged 52 chief of fire department, came to the clinic, Feb 7, 1916 for tumor of the tongue which had been first noticed eleven months previously The family history was not important Thirty-two years previously he had had a chancre which, from the history, was questionably specific He had no secondary lesions He smoked and chewed moderately, but had not used alcohol for thirty-one years Sixteen months before examination at the clinic he had had tonsillitis and was treated by a physician Eleven months before he had received an electric shock from touching an electric fixture with his right hand On the following morning he noticed that his tongue was larger than usual The next day he consulted a physician, who found a tumor at the base of the tongue and removed specimens for diagnosis These specimens were reported as being "mostly lymphatic gland containing much granulation tissue, no evidence of malignancy or tuberculosis" Electric treatments for the tongue were given at this time Nine months before coming to the clinic, he was given five treatments with neosalvarsan and eleven injections of sodium cacodylate with no resulting change in the tumor At this time he had much difficulty in swallowing and talking A month later he consulted a physician who diagnosed the condition as lymphadenoma and cauterized the tumor several times with an electric needle

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* From the Mayo Clinic

[1] Copelli M Jour Cutan Dis, 1913 **31,** 51

This was done once a week over a period of two months There had been shortness of breath for eight months, and also great difficulty in swallowing solids, though fluids were swallowed readily The tumor seemed to be increasing in size but no swellings in the neck were noted The patient had lost 60 pounds since the onset of the trouble, and found it almost impossible to sleep at night as the tongue fell back and obstructed the pharynx, causing dyspnea The normal weight had been 220 pounds, weight at the time of examination, 150 pounds Speech was difficult, the voice was thick and mostly nasal in character

Examination of the mouth showed a nodular tumor at the base of the tongue filling the entire pharynx so that the postpharyngeal wall was not visible It was impossible to press down the tongue in order to examine the posterior part of the growth The tumor was quite firm, but did not have the hardness of malignancy It appeared in rounded folds between which were grayish-white areas There were no lesions in other parts of the mouth The systolic blood pressure was 110, diastolic blood pressure 70, pulse 96, temperature 98 6, urine negative The white blood count was 5,400, red blood count 5 270,000 Roentgenoscopy of the chest was negative, as was also the Wassermann test No lesions were found in any other parts of the body The tissue removed from the tumor showed microscopically lymphoid hyperplasia with great numbers of plasma cells Blastomycetes were found on culture from the areas in the folds of the tumor A culture of blastomycetes injected into guinea-pigs yielded negative results

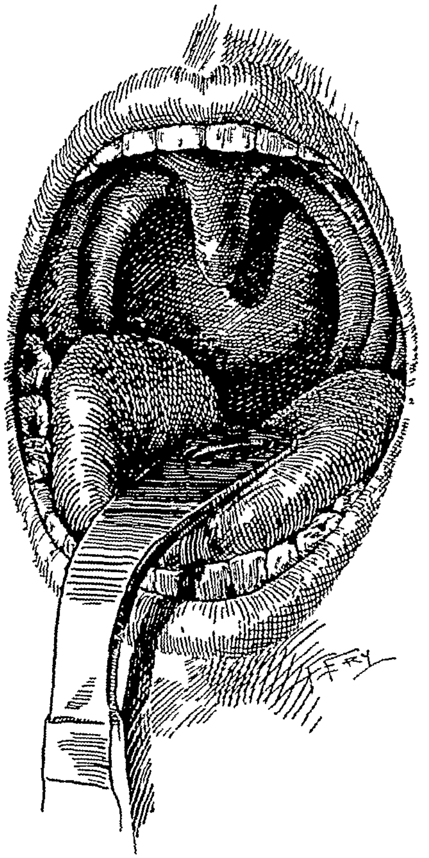
Fig 2—Same as Figure 1 after condition had cleared up

A diagnosis of blastomycosis was made on the presence of blastomycetes with secondary lymphoid hyperplasia of the tissue of the tongue, and because all other findings were negative Malignancy, tuberculosis and syphilis can be readily ruled out from the data stated in the history and the appearance of the tumor The patient was given potassium iodid 10 drops three times a day the dose being increased by 2 drops daily until 125 drops were taken three times daily Iodin was used locally to swab the tumor once a day, and radium, twenty-six hours of a 22 mg tube, was given for a period of three weeks Five weeks after this treatment the patient returned showing marked improvement in his general health He was then able to eat and swallow without difficulty, had no dyspnea on exertion, and had gained 20 pounds in weight. The tongue showed remarkable improvement, and in a direct examination of the mouth very little of the tumor was visible It was possible to see the pharynx, and by the use of the laryngeal mirror it was found that the tumor extended down the base of the tongue to the epiglottis

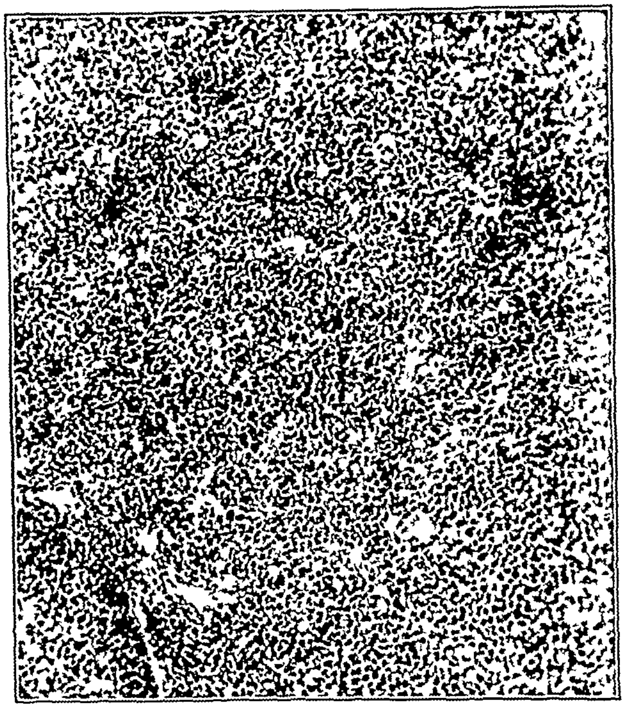
Fig 3—Low power lymphoid hyperplasia

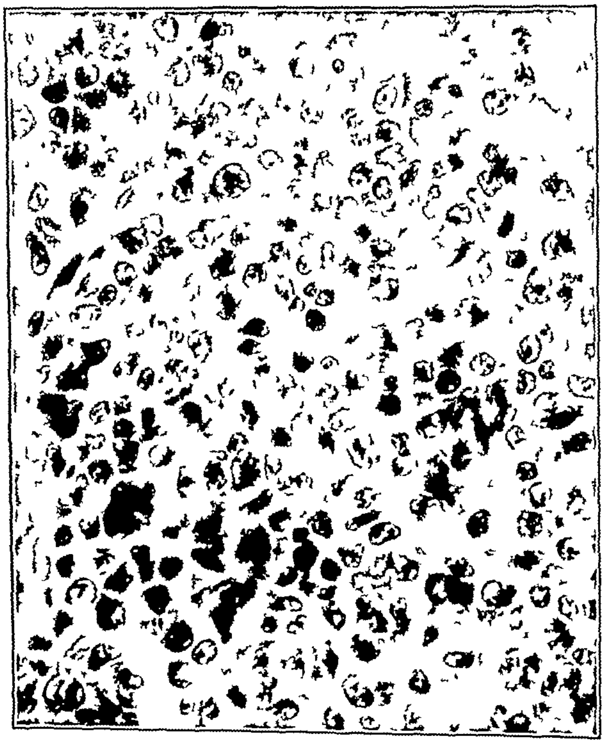
Fig 4—High power great numbers of plasma cells and lymphocytes

Sixteen hours of a 50 mg tube of radium were then given for a period of two weeks, the iodin again applied locally, and the potassium iodid continued Four weeks later the patient returned feeling perfectly well, eating and sleeping without any trouble He had gained 15 pounds since his last visit The tongue appeared normal on direct view, and it was possible to see the pharynx readily By the use of a laryngeal mirror a nodular tumor 1½ inches in diameter was seen down at the base of the tongue About it were several small nodular tumors The larger one was removed by a snare and forceps On microscopic examination it showed pure lymphoid hyperplasia The smaller nodules were treated with radium, sixteen hours of a 22 mg tube Iodin was applied locally and the potassium iodid continued When examined, Aug 10, 1916 the tongue was normal The patient had gained 16 pounds since his last visit, and was feeling well

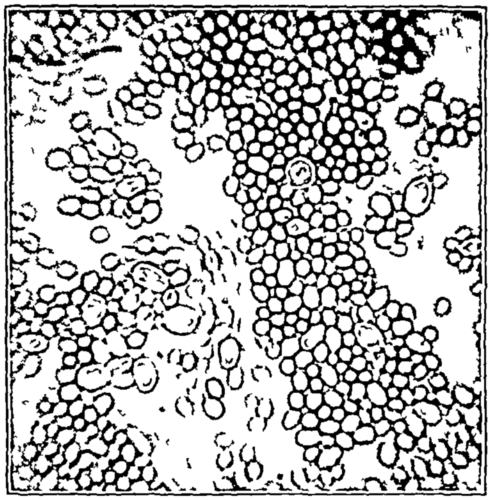
Fig 5 —Pure culture blastomycetes

This case is of interest because of the rarity of blastomycetic lesion of the tongue and the remarkable results of the treatment The nodular appearance of the tumor seemed to be the same as that reported by Copelli[1] It must be remembered, however, that blastomycetes may be found in the tonsils and lingual tonsil so that the presence of blastomycetes alone does not necessarily mean that the disease is true blastomycosis It would seem the lymphoid hyperplasia was a secondary condition stimulated to growth by the presence of blastomycetes, possibly in the lingual tonsil

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Malaria in the United States—As a result of the study of malaria in the United States during the past four years, J W Trask of the Public Health Service (*Public Health Report,* Dec 22, 1916) sums up the situation as follows In the territory extending from the Gulf of Mexico to a line north of the Ohio River, and from the Atlantic seaboard to and into the eastern part of Kansas, Oklahoma and Texas, few, if any, localities are entirely free from malaria In most of the lowlands it is very prevalent, in the mountains and better drained areas, less prevalent The disease is also endemic in southeastern New York and parts of Connecticut, Rhode Island and Massachusetts, and in California in the Sacramento and San Joaquin valleys There is probably no state in the Union in which the disease is not present and in which *it is not spread* by mosquitoes grown locally The disease constitutes one of the big national health problems It is also an economic problem of importance The actual geographic distribution of the disease and its relative prevalence can be definitely determined only by making painstaking malarial surveys or by requiring cases to be reported to the health authorities and the authenticity of the reports verified by blood examinations

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A NEW OPERATIVE PROCEDURE FACILITATING THE ADAPTATION OF ARTIFICIAL DENTURES *

H A POTTS, MD
Fellow of the American College of Surgeons
CHICAGO

Authorities on prosthetic dentistry agree that, before taking an impression, a careful and comprehensive study of the mouth from both the physiologic and the pathologic aspects should be made In an edentulous mouth, the thickness and firmness of the soft tissues are noted, as well as stomatitis, leukoplakia and other diseased conditions, if they are present The bony ridges are studied with regard to undue pressure which may be brought to bear on them

If natural teeth are to be retained, they and their supporting structures must be restored to health, and in either case the attachments of muscles are noted All of these conditions are studied in order that the denture may meet the following requirements, namely, that they may be useful, look well and be comfortable (Prothero) Primarily all of these depend on their retention which is made possible by two physical factors, adhesion, which plays the lesser role, and atmospheric pressure

On account of the varying density and compressibility of the different tissues in the same mouth, both impression and model are scraped in order that a perfect adaptation of the plate to the tissues may be maintained under all the various movements and different degrees of stress to which the plate may be subjected

While the foregoing applies to the normal mouth, the same adaptation, adhesion and atmospheric pressure apply to the abnormal mouth To correct the abnormal mouth, surgical procedures are resorted to, namely, the removal of loose fibrous or spongy tissues, the cutting of fibrous bands, the excision of spicules of process, or well defined osteoid growths which occur in the palate, labial, lingual or buccal regions of the jaws

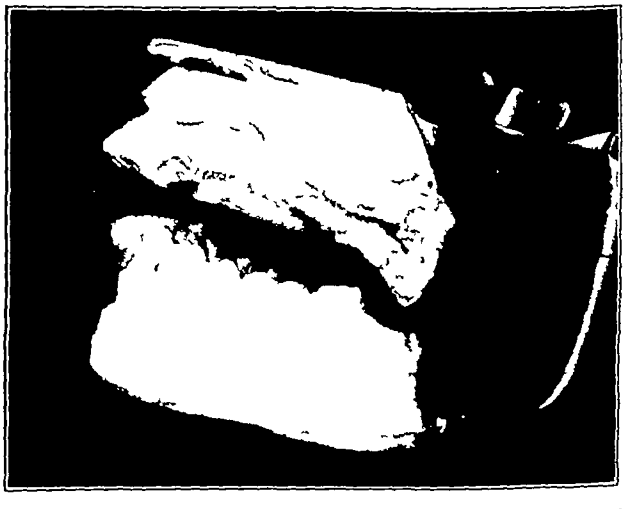
Fig 1 —Casts of upper and lower jaws showing their abnormal relation to each other and marked protrusion of the upper bony arch

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* Read before the Section on Stomatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

The removal of exposed, projecting process after extraction should be more frequently done than is our habit

There is another quite common condition which can be remedied by surgical interference and which, so far as I can judge from a review of the literature and conversation with some of the leaders in dental thought, has not been pointed out, and that is the practical elimination of bony undercuts in the upper jaw If this is done, the making of metal dies and the swaging of metal plates would be simplified, and the making of cores unnecessary

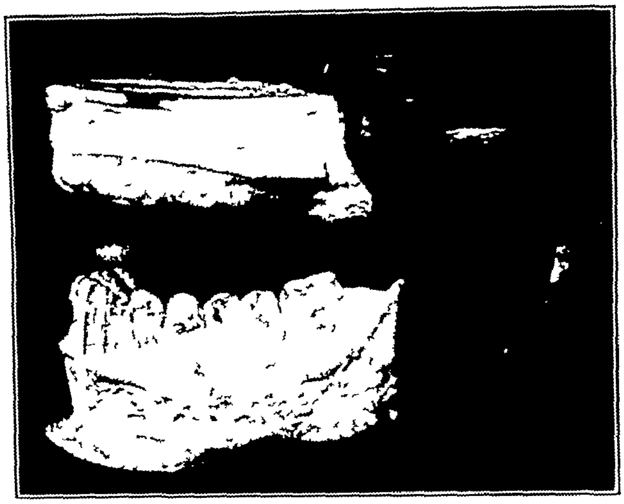


Fig 2 —Casts of upper and lower jaws after operation, showing normal relationship

A conformation which requires the slipping in of a plate as a shoe does not favor retention, but rather militates against it, as the chief factor in retention is atmospheric pressure

When such a plate, the labial and buccal borders of which are forced into undercuts at one or more places, is subjected to the forces of mastication, the upper borders are carried away from the soft tissues, and air passes beneath the plate with its consequent release

The study of the case here reported and the excellent result obtained by surgical means on the bony process seems to justify its more frequent performance

The patient, a woman, aged 50, had long since lost all upper teeth posterior to the cuspids, and mastication on the remaining six anterior ones, together with some destruction of peridental membrane, had resulted in a marked protusion Her dentist, Dr F H Stafford of Chicago, extracted the remaining teeth and proposed to make an upper denture, but found it quite impossible.

He referred her to me for surgical intervention As can be seen by the illustrations and models there is a very marked protrusion of the alveolar process which was covered with quite normal gum tissue and mucous membrane (Figs 1 and 3)

Two incisions along the alveolar ridge, extending from the second bicuspid region on the one side to the corresponding point on the other were made which being 'quarter moon' shaped, eliminated the gum tissue which was between the teeth and left two cleanly cut borders of the flaps A medium vertical incision extending from the reflection of the mucous membrane joined the other incision at right angles The resulting flaps, together with the periosteum were reflected

By means of rongeur forceps and large bud shaped burrs the outer plate of bone was removed from the first bicuspid socket on the one side to the corresponding one on the other side The thickness of bone removed varied, in the bicuspid region being the outer plate only, but the remainder extended to the posterior walls of the alveoli

The incision along the alveolar border as well as the vertical one was closed with interrupted horsehair sutures, there was primary union within ten days Impressions of the new normal mouth, as seen in Figures 2 and 3, were taken, and a perfectly satisfactory denture constructed

31 North State Street

ABSTRACT OF DISCUSSION

Dr Chalmers J Lyons, Ann Arbor, Mich This is the first operation of this kind that has been called to my attention, but I can see the good that can be accomplished in a great many of these seemingly impossible cases for the fitting of artificial dentures Dr Potts has practically restored this to a normal condition This procedure should be brought to the attention of men working in prosthetic dentistry, because there is no doubt that a great number of cases come before them in which such an operation would simplify the fitting of the artificial denture

Dr Eugene S Talbot, Chicago I have removed small pieces of the alveolar process for the same purpose, but never to the extent that Dr Potts has removed it In a number of cases I have also dissected up the buccinator muscle, which extended down to the border of the alveolar process, cutting it clear up to the zygomatic process, in some cases a very little, in others quite extensively, but I would like to know how to prevent the tissues from growing together again That has been the most difficult proposition I have met, especially in cutting the frenum of the lip, to keep the parts from coming together and healing over

Dr H A Potts, Chicago In regard to the inquiry of Dr Talbot, I think I can best answer that by referring to the operation for widening the pylorus of the stomach, known as the Heineke-Mikulicz operation, which involves making an incision in one direction and closing it in the other The same principle can be applied in the case of the frenum By carefully suturing the mucous membrane together it will make the reflection continuous, consequently there will be no raw surface to oppose the raw surface at the gum, and it cannot become attached because it is covered with mucous membrane The operation can be varied by suturing the mucous membrane into that area of the buccinator region I have since seen an enormous exostosis of the labial surfaces and the tuberosities which almost filled the palate Another interesting case has been reported of an exostosis that almost filled the palate In such a case I see no reason why an incision could not be made from one end to the other and the bone chiseled away if necessary, removing part of the palatal, mucous membrane and periosteum suturing that down and making a perfectly normal mouth As I have said, many of these things have been done, but really not with the idea of facilitating the fitting of an artificial denture, and I think by paying a little closer attention and observing these cases they can be benefited very materially

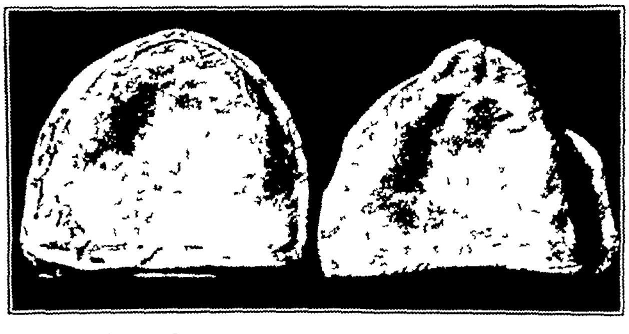


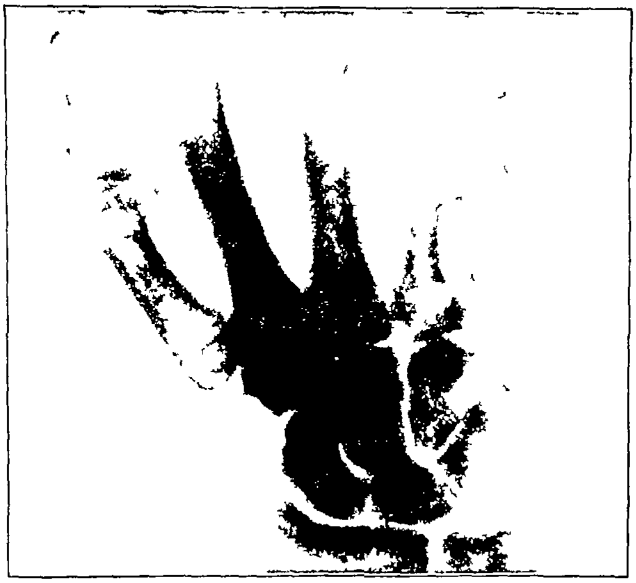
Fig 3 —Casts of upper jaw made from impressions taken before and after operation the result is a perfect arch

COMPLETE FORWARD LUXATION OF CARPOMETACARPAL ARTICULATION OF THUMB

REPORT OF A CASE

E L BERRY
CHICAGO

The articulations between the carpus and the metacarpal bones are so constructed as to make complete luxations of these joints somewhat rare From a surgical point of view these articulations are divided into two parts first, the articulation of the multangulum majus (older terminology, trapezium) with the first metacarpal, second, the articulation between the inner four metacarpals and the carpus The latter acts functionally as one continuous joint, having a synovial membrane in common This union is of the arthroidal type, while the carpometacarpal joint of the thumb is one of reciprocal reception and is capable of motion in all direction, except axial rotation This joint is separate from the other set, is surrounded by a strong separate capsule, and has its own synovial membrane Although dislocations at this point are more common than at the other carpometacarpal joints, of the cases reported very few have been forward, backward luxation being by far the most common



Displacement of os multangulum majus

REPORT OF CASE

H, man aged 30 baggage man at railway station came to the office three hours after the injury which occurred as a trunk which he was loading fell to the ground The wrist was twisted causing the dislocation There was severe pain and the patient had difficulty in using the hand, especially the thumb

When I first saw the patient there was some swelling at the wrist and at the base of the thumb There was considerable pain Adduction of the thumb was difficult, painful and incomplete The greater multangular was easily palpable on the ventral aspect, behind which the proximal end of the metacarpal formed a hard prominence beneath the thenar eminence There was little or no shortening of the thumb The roentgenogram shows the greater multangular displaced anteriorly and medially, with a considerable space between the proximal end of the metacarpal and the neighboring structures There was no fracture as often occurs, of the proximal ends of the first or second metacarpals or of the greater multangular itself

Reduction was accomplished by the following procedure The patient's thumb was grasped firmly in the operator's right hand, the wrist in the left, in such a manner that the tips of both of the operator's thumbs rested on the displaced bone Then with traction on the thumb, and posterior and lateral pressure on the greater multangular, the wrist was slowly flexed As the bone assumed its normal position there was a decided give felt by the operator, and a snapping sound that was clearly audible The roentgenogram taken after the reduction showed the bone in its normal position Inspection and palpation revealed no differences as compared to the other wrist, save the swelling

A thin layer of bandage was placed round the wrist, over which was tightly wound a 3 inch strip of adhesive The patient was able to work two weeks later, although he still wore a wrist support and the joint was somewhat weak

1020 La Salle Street Station

EARLY DIAGNOSIS OF TABES DORSALIS*

WALTER F SCHALLER, M D
SAN FRANCISCO

Tabes dorsalis, as its name would imply, is a disease characterized by a degeneration of the posterior columns of the spinal cord Spiller,[1] however, as far back as 1897, defined tabes in reality as a cerebrospinal disease, and indeed, certain symptoms referable to the cranial nerves may so dominate the clinical picture that the cord symptoms may be insignificant or even pass unnoticed Prominent among these symptoms are those which are referable to the eye Primary optic atrophy is especially frequent

Recently, E Frey,[2] from Schaffer's clinic, has studied 286 cases of incipient tabes, classifying these as oculo-pupillary, dysuric, lancinating and mixed forms, and studying sixty of them also from the standpoint of prognosis

The session[3] of the Society of Neurology in Paris, Dec 30, 1911, was devoted to a discussion of the symptomatic limitation of this affection ("Delimitation du tabes"), and the prominence of the men who took part in this discussion makes it a worthy contribution to the recent literature of this subject J Nageotte maintained that tabes could be defined only by terms of pathologic anatomy and by the etiology, reiterating his radicular nerve theory Nageotte's conception was accepted by such clinicians as Babinski and Andre Thomas, the latter, however, not regarding the radicular lesion as pathognomonic The question of monosymptomatic tabes was raised, and although many of those taking part in the discussion held that an isolated symptom, characteristic of tabes in a patient with a history of syphilis and presenting a typical evolution, might make a diagnosis of tabes very probable, yet an absolute diagnosis was not justifiable (Erb[4] in a recent communication elsewhere also expresses a similar opinion) Henri Dufour reported a necropsy case in which the only symptom during life was an Argyll Robertson pupil and in which the cord showed the characteristic lesions of tabes

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* From the Neurological Clinic Leland Stanford Junior University School of Medicine

* Read before the Section on Nervous and Mental Diseases at the Sixty Seventh Annual Session of the American Medical Association Detroit, June 1916

* Because of lack of space this article is abbreviated in The Journal The complete article with the chart appears in the Transactions of the Section and in the author s reprints

* This article and the one by Drs Riggs and Hammes which follows it are parts of a symposium on Syphilis of the Nervous System The remaining articles by Drs Ball and Pilsbury, and the discussion will appear next week

[1] Spiller W G The Pathology of Tabes Dorsalis Int Med Mag 1897 5, No 5

[2] Frey E Ueber klinische Formen Symptomatologie und Verlauf der Tabes auf Grund von 850 Fallen, Ztschr f d ges Neurol u Psychiat **16**, 1

[3] Rev neurol 1911 No 24

In answer to the question, how early one may venture to diagnose tabes, the quotation from John Babinski may not be out of order

> A patient presents the sign of the Argyll Robertson pupil, furthermore, he is subject to lancinating pains showing the characteristics of those which occur in a plain case of tabes and finally, notwithstanding the subjective pain, intensive faradization of the calf muscles is painless, in such a case, even in the absence of any other symptom, a diagnosis of tabes is almost sure I can almost say as much of a patient in whom all the reflexes, including the pupillary reflex, are normal, and who presents together with the sensibility disturbance just noted a characteristic lymphocytosis of the cerebrospinal fluid Certainly the diagnosis is not of a mathematical certainty, but of a great probability

This statement, coming from a clinician of the prominence of Babinski, is noteworthy, and demands attention and further analysis It is a long step from this picture to the picture presented by the classical tabetic difficulty in walking, Romberg, ataxia, absent patellar reflexes, fixed pupils, advanced sensory disturbances and often typical complications Syphilis is now regarded as the cause of tabes Even Erb,[4] who has always recognized the important part which syphilis has played in this affection, has withdrawn from his former reserved position, and now states that syphilis is the sole cause outside of very exceptional and doubtful cases How syphilis acts on the spinal cord has given rise to many theories, the toxic theory, and the meningeal theories of Obersteiner and Redlich, and of Nageotte occupying the foreground of attention A considerable support to the toxic theory has been given by the recent experiments of Spielmeyer[5]

In order to determine to what extent chronic leptomeningitis of the spinal cord exists in cases of tabes which have been examined at necropsy, I have collected fourteen cases, examined microscopically, from the records of the Pathological Department of Cooper Medical College and Stanford Medical School between the years 1898 and 1916 Thickening or cellular infiltration of the spinal meninges most marked in the posterior portion of the cord was present in all of these cases

Recently, Spiller,[6] in discussing the pathology of tabetic ocular palsy, has stated that in his experience the most characteristic lesion in cerebrospinal syphilis is round cell infiltration of the pia, and that he believes that there is no acute manifestation of syphilis of the cerebrospinal axis without it This author examined sections from eleven cases diagnosed clinically as tabes, and found in all lymphocytic infiltration of the pia, this being marked in nine cases He quotes Bresowsky, who found this picture constant in forty cases of tabes Schroder[7] found in all of five cases studied a pial inflammation of inflammatory nature

I may mention here the studies of Leri[8] on optic atrophy in tabes, in which this author believes that the pathologic process is an interstitial neuritis of the optic nerve due to syphilitic meningitis and syphilitic vascular disease, and the contribution of Vincent,[9] who studied the degenerations of the third, ninth, tenth, eleventh and twelfth pairs of cranial nerves in tabes and found, in the sense of Nageotte, a transverse radicular neuritis at the place where these nerves are included in the dural and arachnoid envelopes

I am inclined to favor the opinion that the cause of the tabetic degeneration is a radiculitis subsequent to primary syphilitic meningitis, believing that this meningitis is sufficient to explain the posterior root degeneration Whether this meningitis affects posterior roots in the locality favored by Obersteiner and Redlich,[10] or by Nageotte,[11] although interesting from the histopathologic point of view, is of secondary practical importance the important point to my mind is whether or not the tabetic process starts as an active inflammatory one in the meninges The importance of a clear understanding of this question is primary, not alone on account of the great diagnostic importance of an inflammatory cerebrospinal fluid, but also from the standpoint of local intraspinal injections by specific remedies

SYMPTOMATOLOGY

As a basis for a clinical study of the early tabes, I have selected and tabulated thirty-five cases from a total of 150 studied, 119 of these cases being similarly tabulated Tabulated cases cannot be recorded as completely as separate case reports, but this table presents in graphic form the most prominent features of early tabes The following discussion is limited to certain of these features, for the general symptomatology, further reference may be made to the table This list of early tabes is manifestly too small to be of value as a statistical study as regards sex, age, occupation, nationality and the incidence of syphilis as an etiologic factor, but it may be mentioned in passing that in this list of thirty-six cases, sixteen patients denied syphilitic infection Of this number the Wassermann was negative in the blood or cerebrospinal fluid in only six cases In this series of six cases, only two (Cases 13 and 36) showed an absence of pupillary signs—Argyll Robertson pupils, anisocoria, and pupils of irregular contour, which we have come to regard as characteristic in syphilis

Sensibility—Among the complaints, some kind of pain was the most frequent Under the headings of lancinating pains and pains described as rheumatism, we group the greatest number of these symptoms, our records show that only three cases — these all being cases of pronounced optic atrophy — gave no history of pain or paresthesias Headache was a common symptom, being present in ten cases Passing from the subjective complaint of pain to the objective disturbances of sensibility, we have grouped these disturbances under the headings deep and superficial sensibility I shall not detail the results of these examinations, nor are they tabulated, reserving this study for a future communication The frequency of objective sensibility disturbance is parallel with the severity of the disease, and these disturbances are probably a constant symptom in tabes, negative results being due to the inefficiency of our method of examination There appears to be no constant relationship between the presence of a positive Romberg symptom and a disturbance of the deep sensibility notion of position, passive motion, localization, deep pressure sense, discrimination between two points and the vibration test The loss of deep pressure pain brought out in Abadie's sign and Biernacki's sign was frequently present Occasionally in testing for Abadie's sign hyperesthesia was present

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[4] Erb Tabes Deutsch Ztschr f Nervenh 1913 47, 74

[5] Spielmeyer W Experimentelle Tabes bei Hunden München med Wchnschr 1906 No 48 p 2338

[6] Spiller W G Pathology of Tabetic Ocular Palsy Jour Nerv and Ment Dis 1915 42 15

[7] Schroder P Ein Beitrag zur Histopathologie der Tabes dorsalis Centralbl f Nervenh u Psychiat Neue Folge 1906 17, 585

[8] Leri Andre Etude du nerf optique dans l'amaurose tabetique Nouv iconog de la Salpetriere 1904 No 17 p 356

[9] Vincent V Des meningites chroniques syphilitiques These de Paris Paris G Steinheil 1910

[10] Obersteiner and Redlich Ueber Wesen der Pathogenese der tabischen Hinterstrangs Degeneration Obersteiner Arbeiten 1894 abstr Neurol Centralbl 1894 No 12 p 454

[11] Nageotte J and Riche A Tabes dorsalis Manuel d'histologie pathologique Cornil et Ranvier Ed 3 1907

Superficial Sensibility The radicular disturbance of the cutaneous sensibility noted by Leyden, Marie, Dejerine, Redlich, Massary and Brissaud has been particularly studied by Marinesco,[12] and by Patrick[13] in this country with reference to tactile anesthesia about the trunk We have also noted the sensory involvement about the trunk and especially the increased sensitiveness to cold, and the girdle sensation Ulnar paresthesias, diminished sensibility about the genitals and the anus has also been noted in our cases In the lower extremities, however, the radicular disturbance of the sensibility has been in our experience less evident, in this locality the charts show a picture commonly seen in polyneuritis, or that described as a segmental distribution involving the feet and shading from the distal to the proximal end of the member Marinesco[12] previously called attention to this point The more frequent involvement of the superficial sensibility than the deep would be the opposite of what was to be expected in an involvement of the posterior columns of the cord only, which are not tracts for pain The symptoms of pure posterior column involvement seen best, according to Dejerine,[14] in combined sclerosis, is not the picture here We believe the frequency and constancy of pain in tabes one of the most convincing proofs of the radicular or meningeal cause of the disease

Reflexes—I wish to call attention particularly to the state of the tendon reflexes in the lower extremities, the tendon reflexes in the upper extremities being generally conserved in our series contrary to the opinion held by Frankel Preservation of the patellar tendon reflex and the Achilles tendon reflex is compatible with a diagnosis of tabes in thirteen of our cases such a condition was present The loss of the patellar tendon reflex or Westphal sign is properly considered an important and characteristic symptom of tabes I wish particularly to discuss the state of the Achilles tendon reflex in these early cases Babinski[15] (1901) deserves the credit of calling attention to the early loss of this reflex, which he claimed generally disappeared before the patellar tendon reflex During the period 1898-1901 this author observed forty cases of this nature, as opposed to five cases in which the patellar tendon reflex was absent and the Achilles tendon reflex present Prior to Babinski's publication, Goldflam[16] noted the absence of this reflex in cases of tabes, and Ziehen[17] discussed its diagnostic signification in various psychoses and psychoneuroses Following Babinski's first communication in 1898, C K Mills[18] found this reflex present in only three cases of tabes out of twenty-eight cases, in all of which the patellar tendon reflex was present Van Gehuchten,[19] Biro[20] and Tumpowski[21] arrived at similar results Kollartis[22] found eleven cases in 100 in which the Achilles tendon reflex was lost and the patellar tendon reflex conserved, and in only one case was the opposite the case Achilles tendon reflex present, patellar tendon reflex absent (unilaterally) Sarbo,[23] in ninety-two cases, found 91 per cent missing Achilles tendon reflexes, and in 190 cases 80 4 per cent missing patellar tendon reflexes In seven cases the Achilles tendon reflex was lost, the patellar tendon reflex conserved Forster[24] and Strassburger[25] noted the absence of this reflex in tabes, without, however, calling attention to its relative importance Bregman[26] draws an analogy between the loss of this reflex and cutaneous sensibility disturbances in the area supplied by the fifth lumbar and first sacral roots Oppenheim[27] sounds a warning note against attaching too great importance to the absence of this reflex in the diagnosis of tabes, because of its frequency in sciatica and related peripheral nerve conditions Jelliffe and White[28] state that the Achilles tendon reflex is not infrequently lost before the patellar tendon reflex

The technic of eliciting this reflex is important, the kneeling position with the foot hanging free and relaxed being necessary for a proper performance of the test (Babinski) In our series there were twenty cases in which one or both of the Achilles tendon reflexes were absent with conserved patellar tendon reflexes, and in seven of these, the Achilles tendon reflex was absent on one side only A striking relationship in regard to the absence of this reflex was seen in ten cases of primary optic atrophy, the extremities of the cerebrospinal axis, as it were, being affected by the tabetic process It would then appear that the loss of the tendon reflexes in the lower extremities in tabes takes the form of a regular progression from below upward in the majority of cases, and in this regard Cases 33 and 36 seem to show both Achilles tendon reflexes lost before the patellar tendon reflex, the latter reflex being lost first on one side only Further, in reviewing the total number of cases (150) we have encountered only one instance in which the patellar tendon reflex was absent when both Achilles tendon reflexes were conserved, and in this one instance only one patellar tendon reflex was lost From these data, then, we believe that as a rule the loss of the Achilles tendon reflex precedes the loss of the patellar tendon reflex, and is therefore an earlier and more important diagnostic sign It is possible in the cervical type of tabes that a different order may ensue, but such an example has not yet come under our observation

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[12] Marinesco, G De la topographie des troubles sensitives dans le tabes ses rapports avec les sensations des tabetiques Semaine med, 1897 No 47 p 369

[13] Patrick H T Anesthesia of the Trunk in Locomotor Ataxia, New York Med Jour Feb 6, 1897 p 173

[14] Dejerine J Le syndrome des fibres radiculaire longues des cordons posterieurs Presse med 1913 No 104 p 1053

[15] Babinski J Sur le tendon d achille dans le tabes Societe medicale des hopitaux, seance du 21 Oct 1898 Societe de neurologie de Paris Seance du 2, Mai, 1901 abstr Rev neurol 1901 **9** 482

[16] Goldflam, S Ueber die Ungleichheit der Knie Phanomene bei Tabes dorsalis Neurol Centralbl 1888 pp 529 556

[17] Ziehen T Zur diagnostischen Bedeutung des Achilles Sehnen phanomens Deutsch med Wchnschr 1894 No 34 p 670

[18] Mills C K Some Points of Special Interest in the Study of the Deep Reflexes in the Lower Extremities Jour Nerv and Ment Dis 1899 **26** No 3

[19] Van Gehuchten quoted by Babinski Footnote 15

[20] Biro M Ueber Storungen des Achillessehnen Reflexes bei Tabes und Ischias Deutsch Ztschr f Nervenh **19**, 188

[21] Tumpowski A Beitrag zur Aetiologie und Symptomatologie der Tabes dorsalis Deutsch Ztschr f Nervenh 1897 p 467

[22] Kollartis Das Verhalten einiger Reflexe bei Gesunden und bei Tabes Deutsch Ztschr f Nervenh 1902 No 23 p 89

[23] Sarbo A von Klinische und statische Daten zur Symptomatologie der Tabes Deutsch Ztschr f Nervenh 1902 No 23

[24] Forster O Zur Symptomatologie der Tabes dorsalis Monatschr f Psychiat u Neurol **8**, 1

[25] Strassburger J Ueber das Fehlen des achillessehnen Reflexes und seine diagnostische Bedeutung Deutsch Ztschr f Nervenh **17**, 315

[26] Bregman L Sehnenreflexe und Sensibilitatsstorung bei Tabes dorsalis Neurol Centralbl 1905 No 1 p 2

[27] Oppenheim H Lehrbuch der Nervenkrankheiten 1913 Berlin, Karger

[28] Jelliffe and White Diseases of the Nervous System 1915

In our cases we note bladder disturbance in ten cases, a very important early sign of cord involvement, also gastric crises in ten cases The frequency of general glandular enlargement including epitrochlear enlargement (eleven cases), and cardiovascular disease is called attention to because they are important symptoms of syphilis and not of tabes In fifteen cases psychic or neurotic disturbances were noted

Eye Symptoms—The frequency of eye symptoms in tabes has long been recognized, and among these, primary optic atrophy is probably the most frequent The remarkable statistics of von Grosz[29] show 88 per cent of diseased papillae in 100 cases examined, and in only two out of the twelve normal backgrounds were present normal vision, normal fields and normal color perception In thirteen of our tabulated cases primary optic atrophy was found, being quite advanced in a number of these cases From the study of these we were able to pick out many of the early forms of tabes enumerated here Argyll Robertson pupils and those showing definite sluggish reaction to light were present in twenty-four out of twenty-five cases, and anisocoria and pupils of irregular contour were found, respectively, in fifteen and thirteen cases, which establishes these two conditions as of great importance as characteristic tabetic eye signs possibly antedating the Argyll Robertson pupil

Ear Symptoms—There were sixteen cases of diminished hearing, nine of these in association with optic atrophy The absence of special examinations in all cases to determine the character of the deafness, whether a nerve deafness or of peripheral origin, is of course not conclusive, but recent observers, such as Knick and Zaloziecki[30] and Swift,[31] who called attention to syphilitic meningitis as the cause of diminution of hearing in certain cases of early syphilis, is important in suspecting a large percentage of our cases to be due to nerve deafness, consequent on radicular nerve disease The fact that syphilitic disease of peripheral nerves is a very rare disease would support this view

Trauma—In eleven cases a history of trauma was obtained The question of trauma as an exciting cause or a contributory cause in tabes in relation to disability has come up in industrial accident cases in California An analysis of these eleven cases shows four patients (Cases 1, 10, 24 and 31) were injured before syphilitic infection took place In two other cases (Cases 16 and 26) of failing eyesight and optic atrophy, trauma preceded the failing eyesight by so short a time that its role in the development of the optic atrophy was very questionable

Wassermann Reaction and Cerebrospinal Fluid Analysis—The Wassermann reaction was found positive in twenty cases in the blood and in twenty cases in the cerebrospinal fluid, and in one or both in twenty-seven cases The globulin reaction was present in twenty-two cases out of the thirty-one done The cell count was positive in twenty-seven out of thirty-two cases and was the most frequent positive cerebrospinal fluid reaction in our series In five cases the cell count was not increased, three cells being regarded as the upper limit of normal per cubic millimeter In a recent paper[32] on the subject of cerebrospinal fluid analysis in which 116 fluids were examined, it was my opinion that six cells per cubic millimeter were the upper limit of normal, but we have come to regard this figure as too high The lower figure corresponds with the results of Nageotte, who found an average of three cells per cubic millimeter in fifty-six normal fluids examined I myself prefer the Nageotte[33] counting cell, and count at least six cubic millimeters of fluid, making two separate spreads and being careful to obtain a good admixture of fluid and to count the fluid a short time after it is withdrawn It is exceedingly likely that variation in results is often due to a failure in technic In three cases the cells and globulin were not increased, and in two cases all reactions of the cerebrospinal fluid, including the Wassermann test, were negative Nonne[34] reports eleven such cases in 167 cases of tabes In Case 13 we have a record of an entirely negative cerebrospinal fluid with definitely thickened membranes

This brings us to the consideration of the importance and constancy of the cerebrospinal fluid reactions indicating inflammation increased cell count and increased globulin content and probably also the Lange gold test Since Widal, Sicard and Ravaut[35] found an increased cell content in cases of paresis and tabes, and Guillian and Parant[36] noted an increased globulin content, these tests have occupied first rank as important diagnostic aids in detecting syphilis of the central nervous system In the Paris meeting noted above it was the opinion of Sicard that a lymphocytosis was constant in tabes as a rule Soques had found it absent one or two times in tabes Andre Leri considered the lymphocytosis as indicating a meningeal process in evolution, and reported on the examination of a spinal cord in which at different levels the histologic picture varied, in the cervical region thickened membranes and infiltration of leukocytes, whereas the dorsal cord showed definite thickened meninges without infiltration of leukocytes

This brings us to the important point of correlating our findings in the cerebrospinal fluid with our conception of the histopathology of tabes dorsalis We have seen in our list of necropsies that a chronic syphilitic leptomeningitis, most intense in the posterior aspect of the cord, is a constant finding It would be only natural to assume that such an inflammation in the meninges would manifest itself in increase of cells and globulin in the cerebrospinal fluid I believe that repeated lumbar puncture will show at one time or another increased cell count and albumin in a progressive tabes, and that in a negative outcome of such repeated tests the diagnosis of tabes should always be made with reserve It may not be amiss to report a case[37] previously but erroneously reported as tabes, which presented certain characteristic symptoms of tabes gastric crises, ataxia, sensory disturbances and absent Achilles tendon reflexes and patellar tendon reflexes Repeated examinations of the cerebrospinal fluid were constantly negative as regards cell count and globulin, but finally a faintly positive Wassermann reaction in the cerebrospinal fluid was obtained Syphilis was denied This patient subsequently died of an intercurrent affection, and necropsy revealed posterior column degeneration on cut sections of the cord which led to the diagnosis of tabes dorsalis, but the meninges were not thickened or infiltrated This feature was commented on, and this was considered a case worthy to report, but Weigert's stain for myelin degeneration showed the typical picture of a combined sclerosis I am not aware of any case of tabes being yet reported which has shown clinically a negative cerebrospinal fluid finding for cells or globulin, and in which a following postmortem examination has revealed normal spinal meninges by microscopic examination

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[29] Von Grosz quoted by Karl Schaffer Handbuch der Neurologie Lewandowsky Spezielle Neurologie 959

[30] Knick H and Zaloziecki, A Ueber Acusticuserkrankungen in Fruhstadium der Lues Berl klin Wchnschr 1912 **49**, Nos 14 15

[31] Ellis A W M and Swift H F Involvement of the Eighth Nerve in Syphilis of the Central Nervous System The Journal A M A May 1 1915 p 1471

[32] Schaller W F A Report on the Analysis of the Cerebrospinal Fluid Jour Nerv and Ment Dis 1913 **40**, No 8

[33] Nageotte and Levy Valensi Numeration direct des elements cellulaires du liquid cephalorachidien Compt rend Soc de biol 1907 **2**, 603

[34] Nonne Der heutige Standpunkt der Lehre von der Bedeutung der vier Reaktionen Deutsch Ztschr f Nervenh 1911 **43**, 201

[35] Widal Sicard and Ravaut Cytologie du liquide cephalo rachidien au cours de quelques processus meninges chroniques (paralysie generale et tabes) Bull et mem Soc med d hop de Paris Jan 18 1901 p 31

[36] Guillian and Parant Sur la presence d albumines coagulables par la chaleur dans les liquid cephalo rachidien des paralytiques spinaux Rev neurol April 30 1903 p 406

[37] Schaller W F Salvarsan in Syphilitic Disease of the Nervous System California State Jour Med October 1912, Case 10 (Tabes)

CONCLUSIONS

1 In tabes the syphilitic posterior leptomeningitis of the spinal cord (and probably also of the radicular nerve) is in etiologic relationship to the degeneration of the posterior columns of the cord Every case of syphilitic posterior leptomeningitis and consequent multiple symmetrical radiculitis is a case of potential tabes

2 This meningeal reaction is evidenced in the cerebrospinal fluid by an increased cell count and increased globulin content, and probably also by a positive Wassermann reaction indicating that this reaction is syphilitic in nature During certain stages in the evolution of tabes, probably of repair, these reactions may be negative It is therefore necessary to make repeated lumbar puncture in doubtful cases

3 Syphilitic radiculitis has its characteristic disturbance of the sensibility Subjective disturbances are pain and paresthesias, objective disturbances are deep and superficial sensibility impairment, the latter following radicular distribution In the lower extremities, this radicular involvement cannot always be demonstrated, the sensory cutaneous involvement often presenting a peripheral or segmental type

4 The Achilles tendon reflexes are lost as a rule before the patellar tendon reflexes this phenomenon was observed in ten cases of primary optic atrophy from a total of thirteen cases

5 Anisocoria and pupils of definitely irregular contour are found frequently in early tabes These pupillary signs, even in the absence of the Argyll Robertson pupil, are highly characteristic of early tabes, provided there is no local assignable cause

6 The symptom of diminished hearing is frequently encountered in early tabes

7 Cardiovascular disease, especially aortic disease, and general glandular enlargement are frequently found in tabes, thus giving evidence of syphilitic processes elsewhere in the body

8 In a patient with a history or other evidence of syphilis presenting characteristic sensibility disturbances of the radicular type with a tendency to symmetry, one should suspect a potential or early tabes If, associated with the foregoing, we have a positive reaction in the cerebrospinal fluid indicating a chronic syphilitic meningitis, together with such pupillary phenomena as anisocoria, pupillary irregularity or sluggish reaction to light, the diagnosis of early tabes is most probable Added to the foregoing symptoms, the loss of the Achilles tendon reflex establishes the diagnosis of early tabes even in the absence of those signs which we usually associate with tabes Romberg, marked sensibility loss, absent patellar reflexes and Argyll Robertson pupils

610 City of Paris Building

SHALL WE TREAT THE PARETIC?*

C EUGENE RIGGS, M D

AND

E M HAMMES, M D

ST PAUL

The first clear presentation of the clinical relationship of the mental and physical symptoms in paresis was made by Bayle in 1822, although the earliest description of this disease was given toward the close of the eighteenth century by Chiarugi and Haslam[1] Almost forty years ago, Fournier startled and antagonized the medical world by suggesting that syphilis in the great majority of cases was the cause of locomotor ataxia This has been a subject of bitter discussion for more than a third of a century, in fact it was Metchnikoff's infection of apes with syphilis in 1903 that robbed syphilis of its mystery, and gave it a definite standing among infectious diseases This was the first definite step in the elucidation of our present knowledge of the pathology and symptomatology of nervous syphilis Then came notable years Schaudinn in 1905 discovered the *Spirochaeta pallida* In 1906, Wassermann announced his reaction, which proved the presence of syphilis in the varied manifestations of syphilis The researches of Noguchi, Moore, Marie and Levaditi, who have found spirochetes in the lesions of tabes and paresis, demonstrated that *in these affections*, we are dealing with actual syphilis a late manifestation of the infection It has been recently suggested that we discard the terms "paresis" and "tabes," and speak only of cerebrospinal syphilis, paretic or tabetic in type The yearly economic loss to New York State on account of insanity is about $35,000,000 Syphilis was the principal cause of insanity in 19 8 per cent of the male and in 7 2 per cent of the female patients admitted to New York State hospitals in 1913 "Of the killing diseases," says Sir William Osler, "syphilis comes third or fourth." Church states that it is a conservative estimate that one man in every five is syphilitic In the New York State hospitals, paresis constitutes one eighth of all the admission Out of 4,000 syphilized men examined, *twenty-two years after the last of them was infected*, Mattauschek and Pilcz[2] found that 6 27 per cent had developed paresis or tabes or both of these diseases It has been estimated that from 9 to 25 per cent of those infected develop nervous symptoms At the San Francisco session of this Association, we placed great emphasis on the importance of the examination of the spinal fluids in early syphilis Hoffman, Nicols and Steiner have observed that in 15 per cent of the cases in primary and secondary syphilis, the spinal fluids are infectious, and infections by their inoculation can be obtained before changes can be observed in the Wassermann and other reactions[3] After a syphilitic infection, it would appear that there is invariably an involvement of the central nervous system, even though it be of slight duration and unattended by neural change That a variation in the spirochete occurs is shown by laboratory experiments Wile[4] observed that spirochetes injected into rabbits from the living paretic brain were of a virulent type, and that the incubation was shorter than with other strains Investigators in the laboratory of the Army Medical School in Washington have bred several varieties of spirochetes "They can breed a variety which will produce a hard chancre, or a variety which will produce a chancre lacking the old hunterian characteristics of a saucer-like indurated base They can produce a spirochete which will give a mucocutaneous efflorescence, or a spirochete which will be poor in cutaneous manifestations, with a tendency to confine its influence to the nervous system" (Church)

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* Read before the Section on Nervous and Mental Diseases at the Sixty Seventh Annual Session of the American Medical Association, Detroit June 1916

[1] Chiarugi and Haslam, quoted by Kraepelin General Paresis Nervous and Mental Diseases Monograph Series No 14 1913

[2] Mattauschek and Pilcz Ueber die weiteren Schicksale 4 134 katamnestische verfolgte Falle luetische Infektion, Med Klin 1913, p 1544

During the past decade, our conception of syphilis and its therapy has been absolutely revolutionized The latter was based largely on hypothesis and empiricism Twenty-seven years ago, we were taught that the essential and primitive anomaly in the paretic's brain was "a vasomotor disturbance"[5] Trephining was therefore suggested by Batty Tuke of Edinburgh, to overcome cerebral congestion and we (Dr Riggs) can well recall the enthusiasm with which he discussed the potentialities of the new procedure This was the first step in the subdural medication of today In 1901, Dr Ford Robertson,[6] suggested that paresis was a disease due directly to the toxins of bacteria, the point of attack being the alimentary tract In 1903, he first announced his theory of *Bacillus paralyticans* as a cause of dementia paralytica[7] In 1905, Robertson and McRae[8] reported the presence of the diphtheroid bacilli in the genito-urinary tract in general paralysis and tabes dorsalis The same authors,[9] in 1907, discussed the treatment of paresis and tabes by vaccines and antiserum While they first tried vaccines, they placed their reliance on the antiserum The latter was obtained from immunized sheep which had been inoculated with dead cultures of the *Bacillus paralyticans-longus*, isolated from the brain of a general paralytic After two months' treatment of the sheep, the serum was fit for use It was administered by mouth, nose or hypodermic Of twelve cases of paresis treated by them they report that "all have shown remarkable signs of improvement" In tabes the ataxia was much benefited

The favorable influence of an intercurrent acute febrile disease in certain cases of general paralysis has long been a matter of common observation Since it would be neither judicious nor wise to infect the patients with a serious specific fever, other means for inducing a harmless temporary febrile reaction have been suggested The tuberculin treatment of von Wagner[10] and the sodium nucleinate injections of Donath are the two classical methods of inducing artificial pyrexia in this disease In 1909, von Wagner announced his treatment of general paralysis by injections of tuberculin (Koch) combined with mercurials and iodids His pupil, Pilcz, in 1910-1911, reported eighty-six cases of clinically demonstrated paresis which were treated by this method Small doses, from 0 0005 to 0 01 c c of tuberculin, were injected every second day, the dose being gradually increased until 0 3 or 0 5 or even 1 c c was administered In 39 44 per cent there was no perceptible or only a slight improvement, while in 60 32 per cent there was a distinct clinical betterment observed Remissions were noted in 26 per cent of the cases In 1903, Donath[11] reported six cases of paresis and of cerebral syphilis treated by salt infusion, given every third or fifth day The infusion was administered for the purpose of freeing the system of toxins formed by the degenerating nervous substances All these patients were improved by the treatment, and he believed the subcutaneous injections of salt solution of particular value in early paresis In 1910, he suggested the use of sodium nucleinate in place of the salt infusion[12] He injected 1 gm of this salt (a 2 per cent solution in normal saline) once a week There is a rise of temperature, which attains its maximum in from four to ten hours and returns to the normal in from one to two days, a transient leukocytosis numbering from 10,000 to 25,000 per cubic millimeter occurs, which disappears generally by the fifth day He reported the treatment of fifteen patients with paresis, 60 per cent showed improvement in tremor and memory and a lessening of acute mental symptoms, three were able to return to work, six were improved, in five there was no change, one died of apoplexy Mercury was also used

Last fall, we (Dr Riggs) wrote twenty-six of our leading neurologists and alienists in regard to their experience with the pyrexia treatment in paresis None had used tuberculin, two, Dr Dana and Dr Barrett, had tried the sodium nucleinate injections The former stated that he had used the nucleates of soda in several cases of paresis He had not seen it do any good and had not heard of any good results The latter wrote "We did a little work with the nuclein treatment of Donath, but our work was not carried very far I felt that with such methods as these we could not get at the real root of conditions present in paresis" In Dr Church s reply, he said Many years ago (twenty-five years) some such cases were treated with inoculations of modified erysipelas germs, or what amounted to that, in the hospital at Elgin, only, however, with unfortunate results" Regarding this method, Dr Purves Stewart says "I have made a number of observations with a moderate amount of encouragement" Dr C W Burr questions the beneficial influence of an acute febrile attack in these patients "I have seen a few patients, who, during a febrile attack, seemed to temporarily improve My impression is that the cause of the fever was of no importance I have never seen any permanent good result I have seen many other patients with paresis in whom fever had no influence at all"

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[3] Church, Archibald Some Modern Views of Syphilis of the Nervous System THE JOURNAL A M A , May 20 1916 p 1596

[4] Wile U J Experimental Syphilis in the Rabbit Produced by the Brain Substance of the Living Paretic Jour Exper Med 1916 23 199

[5] Spitzka E C Manual of Insanity 1889

[6] Robertson, Ford Brit Med Jour 1901

[7] Robertson F W Histologic Evidences of the Presence of an Organism Resembling the Klebs Loeffler Bacillus in Cases of General Paralysis of the Insane Rev Neurol and Psychiat 1903

[8] Robertson F W and McRae G D Observations on the Treatment of General Paresis and Tabes Dorsalis by Vaccines and Anti Sera Rev Neurol and Psychiat 1907 **5,** 673

[9] Robertson F W and McRae G D Rev Neurol and Psychiat 1907

[10] Von Wagner Ueber die Behandlung der progressiven Paralyse Wien med Wchnschr 1909 No 27 International Medical Congress Budapest

[11] Donath Julius Die Behandlung der progressiven Paralyse sowie toxischer und infektioser Psychosen mit Salz Infusion Deutsch med Wchnschr 1903 **29,** 110

[12] Donath Julius Weitere Ergebnisse der Behandlung der progressiven Paralyse mit Natrium nucleinum Berl klin Wchnschr Dec 19 1910

In 1905, Dr Myer[13] said, "The important point about general paresis seems to be finding out what makes general paresis a progressive disease" Modern research answered that question The important problem now is how to destroy the spirochete The potentiality of our therapeutic resources has been greatly enhanced by Ehrlich's discovery of salvarsan in 1909 It is the consensus of opinion that all the varied manifestations of syphilis can best be treated by the combined use of mercury and salvarsan Since these patients first consult the general practitioner, on him rests a grave responsibility, for only by an early recognition of the initial lesion and a radical use of modern methods of therapy can a cure be obtained, or late syphilis (paresis or tabes) be prevented After invasion of the nervous system, one of two modes of procedure may be advised intrathecal or intensive medication To Marinesco, in 1911, belongs the credit of the initiation of the former Swift and Ellis used salvarsanized serum intraspinally in the therapy of tabes dorsalis in 1912, while Robertson of Edinburgh employed it in paresis in 1913 In 1914, Ravaut injected neosalvarsan directly into the spinal fluid Byrnes during this year used intraspinal injections of mercurialized serum In 1915, Hammond and Sharpe treated three paretic patients by direct injection, into the lateral ventricles, of salvarsanized serum and neosalvarsan added to the serum

This multiplicity of procedure is not chaotic, as it would at first appear, it is an expression of the scientific purpose to reach the hitherto inaccessible spirochetes, to bring the spirocheticidal solution into contact with the infecting organism, it is simply science groping, if somewhat blindly, for a definite result "The end in view in this treatment of nervous syphilis," says Swift, "is threefold, i e, cure, amelioration or prolongation of life" Have modern methods, as employed in paresis, been of value in any of these respects? Certainly not in cure in fully developed types of the disease Do they arrest or favorably influence paresis or prolong life? Many believe that as good results were obtained from the routine treatment of the presalvarsan period Others regard modern methods as most disappointing Evans and Thorne[14] state that as much improvement may be seen in patients who have received no special treatment as they observed in their cases following the combined use of the intraspinal and intracranial methods Such, however, has not been our observation or experience

We believe that, by intraspinal medication, remissions are greatly increased in frequency, that in early paresis, marked improvement may occur, with a possible arrest of symptoms Paine[1] has observed 1,279 untreated cases in which there occurred ninety-five remissions Statistics vary greatly as to their occurrence, varying anywhere from 4 to 20 per cent Cotton has observed as the result of treatment 35 5 per cent of remissions, while in the untreated cases, the number of spontaneous remissions was about 4 per cent Ogilvie[16] has reported twenty-six remissions, averaging over a year each, out of thirty-five cases The minimum number of injections required to induce a remission was six, the maximum, fourteen "The establishment of a remission," says this writer, "is something gained, but it is merely one step in the right direction" The favorable results of this treatment, according to Amsden, can best be expressed in terms of remission "The value of remissions in general paresis in any line of treatment is difficult to estimate," says Barrett "We have, however, gained the impression from a considerable amount of work, that remissions are more complete and patients are able to remain out of the institutions longer when treated intraspinally than by any other mode we have used"

Regarding the arrest of the paretic process, Marinesco and Minea[17] say

> Modern therapeutics cannot accept the dogma of the incurability of general paresis, not even of its steady progress, there are cases known where the disease is stationary, such are rare There are many cases in which repeated remissions occur The stationary state, as well as the repeated remissions, prove not only that the lesions can stop for some time but also that there must be in the brain of general paralytics alterations which can be replaced

These writers suggest that remissions are due to the formation of antibodies as in other infectious diseases

We have had the opportunity of observing seventy-one cases of paresis during the past four years, of which twenty-one have been treated by us Of the fifty untreated cases, or those treated intravenously or with mercury one only has had a remission The brief citation of four cases will be sufficient

Case 1—Man The grandiose type, with characteristic spinal blood and fluid findings of paresis A remission of four months duration occurred after the sixth treatment A relapse occurred and after further treatment there was a second remission of five months' duration, which still persists He is steadily improving and is practically normal aside from occasional periods of mild elation This patient has had forty-one intraspinal injections (thirty-four salvarsanized serum seven mercurialized serum) with no untoward symptoms The spinal fluid gives a positive Wassermann in 0 8 c c, there is a trace of globulin, no lymphocytosis, blood Wassermann negative, no change in the colloidal gold reaction

Case 2—Man aged 44, family and personal history negative, aside from alcoholism Acute grandiose type, patient showed mental unbalance a year before coming to us Biologic findings typically those of paresis, remission took place after the seventh injection, which lasted for eight months He was able to resume the oversight of his business affairs He then became homicidal and suicidal and was sent to the state hospital Aside from the suicidal propensity, his mental condition seems good He received twenty-one injections of salvarsanized serum (Swift and Ellis), blood Wassermann negative, spinal fluid negative in 0 8 c c, positive in 1 c c no globulin, no lymphocytosis, colloidal gold curve uninfluenced

Case 3—Man, aged 48, single, gonorrhea in 1900, denied syphilis, when seen by us he was acutely excited, it required four men to bring him to the hospital Since January, 1915 patient has been indifferent about his work and restless He became elated in March, 1915 There were Argyll Robertson pupils and increased knee jerks Serobiologic findings those of paresis After the sixth injection of salvarsanized serum, he was able to return home and help on the farm At present writing aside from slight nervousness, he is apparently normal He received in all twenty-six intraspinal treatments (Swift and Ellis) After a time, we gave him weekly, in addition, 2 grains of mercuric salicylate intramuscularly. Blood serum is negative, spinal fluid positive in 0.8 c.c., no lymphocytosis, no globulin, colloidal gold curve unchanged.

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[13] Myer Adolph, discussion Dana Charles L The Curability of Early Paresis The Journal A M A, May 6 1905 p 1413

[14] Evans, B D and Thorne F H The Treatment of Paresis Am Med Psychol Assn, 1915 **22**

[15] Paine L H Boston Med and Surg Jour 1913 **118** 648

[16] Ogilvie H S New York Neurological Society Jour Nerv and Ment Dis March, 1916

[17] Marinesco and Minea L'emploi des injections de serum salvarsanisé in vitro et in vivo sous l arachnoid spinale et cerebrale dans le tabes et la paralysie generale Rev Neurol *1914* **27**, *337*

Case 4.—Man, aged 38, contracted syphilis in 1902, consulted us, March, 1916, was talkative, disoriented, very restless, expectorated constantly and made grimaces, Argyll Robertson pupil, increased knee jerks and Babinski. Biologic findings those of paresis, was given mercurialized serum intraspinally with intramuscular injections of mercury. He grew gradually worse and died, April 1916. No biologic reduction. Evidently this was a case of so-called "galloping paresis."

Of the twenty-one patients treated with salvarsanized serum intraspinally (Swift and Ellis) with and without mercury intramuscularly, ten showed a decided improvement. Of these, five are at present attending to their business affairs, one had a remission of eight months, another one of four months, one has had two remissions of four and five months' duration, respectively, one is at home. In this patient, there is a slight improvement with an occasional epileptic attack. Still another is home and is able practically to attend to his business. Three died, not following an injection, but some time after discontinuing treatment. The eight remaining are still living and have manifested some improvement physically, but no change in the mental condition. In all but two of these patients who were sufficiently treated, the Wassermann in the blood became negative, but none gave a negative Wassermann in the spinal fluid, lymphocytosis disappeared, globulin a trace. We have been unfortunate that in none of our cases have we been able to render the spinal fluid negative. According to Ogilvie, it is practically impossible to get a negative Wassermann in true parenchymatous disease of the brain. When obtained, it indicates that the specific process is confined largely to the interstices of the cerebral tissues.

"At this hospital, we have treated, in all," says Dr. Blumer,[18] "twenty-five cases, twenty paretics and five tabetics (December, 1915). Of the paretics, five are now dead, four having shown no improvement, one died of a convulsion after having shown considerable improvement. In five other cases, the course of the disease continues unabated. The remaining ten have all shown great clinical improvement and have been able to return to their homes and business. Of these, three men have had no recurrence during nearly two years' absence from the hospital. The laboratory results have been rather discouraging. Only four patients have obtained a persistently negative Wassermann. Most of the others show no change, while in some the Wassermann has appeared and disappeared irregularly. Three show disappearance of the gold chlorid reaction, while the remainder show practically no change. In all cases the cell count has shown a steady reduction, the globulin content has been more varied, but in most cases has fallen to normal with the improvement of the patient." "We have a number of cases of paresis," writes Barrett, "who were treated intraspinally, in which the diagnosis was unquestionable, who are now carrying on their accustomed occupations with remarkable efficiency, considering their disease."

Amsden[19] states that "intraspinal treatment with salvarsanized serum has in a considerable number of cases a positive influence in checking the progress of the disease, at least clinically, it does not stop it except in very rare cases." The writer also calls attention to the fact that from the standpoint of the family the value of this treatment is a matter of importance, since the patient may become able to give information about his affairs, enabling him, as it were, to put his house in order. "In the use of salvarsanized serum," Cotton says, "we have an agent which does cause definite arrest in paresis, which arrest includes improvement in the clinical symptoms, physical signs and a corresponding change in the biological reactions from positive to negative." The writer points out that as it is necessary to treat tuberculosis in the incipient stage in order to obtain results, that it was equally true in regard to paresis, it was fallacious to condemn the treatment of paresis because we could not cure the end stage. He says:

> The emphasis should be placed on treating the cases early. This is especially so in regard to state hospital work, where 75 per cent. of the cases are admitted too late for treatment to be of any benefit to them, but 25 per cent. can be materially improved, as shown by our records. The mortality from paresis has dropped 33⅓ per cent. in the hospital in the last three years. We also have no bedridden paretics, which as a rule are the bane of most hospitals. If these results can be produced on fairly well advanced cases, it augurs well for the success of the treatment of early cases.

The time, then, of greatest opportunity in the treatment of paresis is in its incipiency, before the parenchyma of the cortex has become the seat of degenerative change. "It would be unfortunate," says Amsden, "if apparent poor permanent success in arresting the disease should keep us from trying it and trying to improve it." We are in entire accord with Ogilvie when he says that intraspinal treatment is entitled to recognition as a rational therapeutic procedure and that a far greater percentage of all kinds of cases respond to it than to the older methods of therapy. We have persisted in the use of the Swift and Ellis procedure because there is less hazard in its use, and therapeutically it is as efficient as any. Ayer[20] has described intraspinal injections of serum under prolonged high pressure. He has been able to demonstrate the serum in the subarachnoid space over the frontal lobes. It is possible that this method may possess an increased curative value. Mercurialized serum has given us good results, although it has seemed somewhat more irritating than salvarsanized serum. Several times the injection has been followed by incontinence of urine. We have not employed cerebral puncture as suggested by Wardner,[21] there is much to commend it, and in cases of paresis of long standing it is perhaps the method to be chosen. It is certainly preferable to ventricular puncture as suggested by Hammond and Sharpe. The employment of Ogilvie's standardized serum is a conservative means of injecting salvarsan directly into the spinal canal. Its beneficial effect cannot be doubted. Cotton is using this method for cerebral puncture and mercurialized serum for both cerebral and intraventricular puncture. While the value of drainage of cerebrospinal fluid cannot be explained on theoretical grounds, yet benefit has, in our observation, followed this procedure in some hitherto intractable cases. Sachs believes that he has seen as marked and satisfactory improvement from intravenous as from intraspinal therapy, and he has come to feel that the latter has been unduly pushed; it is more difficult to give, more likely to lead to serious complications, and at times it has been followed by disastrous consequences. Cotton says he considers intravenous injections of salvarsan more dangerous than intraspinal; that with myocardial trouble the former might prove fatal. He says:[22]

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[18] Personal communication to Dr. Riggs.

[19] Amsden, George: New York Neurological Society, Jour. Nerv. and Ment. Dis., March, 1916.

[20] Ayer, J. B.: Cerebral Syphilis. A Method of Treatment by Prolonged Intraspinal Injections of Serum under High Pressure, Boston Med. and Surg. Jour., **174**, No. 17.

[21] Wardner, D. M.: Intracranial Injections of Salvarsanized Serum, Tr. Am. Med. Psychol. Soc., 1915, **22**.

> We have given as near as I can figure about 3,000 treatments in the last three and a half years, and have had no unfavorable results whatever, except one or two cases have developed an irritative meningitis which subsided within a week without any bad results.

Ogilvie states that the use of his serum "in more than 1,800 treatments has shown it to be both safe and effectual as a curative agent in types of syphilitic nervous diseases, in which intraspinal therapy is indicated." We have made over 600 injections of salvarsanized serum (Swift and Ellis method) with no serious ill effects. *In one patient only, there developed* an aseptic meningitis, which quickly subsided. Our experience teaches us that this method is a safe and conservative form of therapy, and should be preferred to intensive medication in all serious cases of cerebrospinal syphilis and its late manifestations, paresis and tabes. Over 74 per cent of Ogilvie's series of cases were influenced favorably to a degree not attained by the most heroic intravenous treatment, either with or without mercury.

CONCLUSIONS

1. Both clinically and biologically it has been demonstrated that treatment is a material benefit to the paretic.

2. Before the salvarsan era, the number of remissions varied from 4 to 20 per cent. Since its use and the employment of modern forms of therapy, they have been greatly increased in frequency.

3. Treatment, to be effective in paresis, must be given in its earliest stage; in cases of long standing it is useless; cell destruction cannot be replaced. Also, to be effective, it must be persistent. It may be a matter of many months before the activity of the infection can be influenced.

1019 Lowry Building.

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[22] Personal communication to Dr. Riggs.

A Warning Against Trichinosis.—The federal meat inspectors do *not* inspect pork or pork products to determine the presence or absence of the organisms causing trichinosis, as even careful microscopic examination is unreliable. They do require, in establishments under their supervision, that pork that is to be made into products to be eaten raw shall be heated or subjected to extreme cold so as to destroy such organisms, but as federal inspection covers only establishments engaged in interstate commerce, it is not safe to rely *on it* altogether. Even such products should be avoided unless they are known to have come from establishments under federal or equivalent inspection. In fact, the Bureau of Animal Industry, United States Department of Agriculture, in a warning just issued against the danger in raw pork, gives no countenance to its use as an article of diet, but emphatically sets forth that the safest plan is to eat no pork products of any kind raw. According to the bureau, the records show that the number of cases of trichinosis increases during the holidays, partly because of hog-killing time, and partly because farmers frequently make up special forms of sausage which are eaten without cooking. The rule of safety laid down by the bureau is to cook pork until it has lost its red color throughout all portions, or, if a trace of this color is still present, at least until the fluids of the meat have become more or less jellied.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 120*)

CASTS

There are several kinds of tube casts: (1) hyaline, (2) epithelial, (3) blood, (4) granular, (5) fatty, (6) waxy or amyloid, and rarely (7) bacterial. Cylindroids formed from so-called mucus are shorter and broader than hyaline casts, but are less firm in structure, being readily broken up. They are of no significance except when they occur in considerable numbers, when they indicate kidney irritation and an abnormal increase of mucous secretion. Cylindroids and hyaline casts are formed from the same substance as that which forms the mucous threads sometimes found in the urine.

1. A hyaline cast is a secretion of this mucus, perhaps by the glomerulus, which has remained in a tubule until it has become formed and shaped, although its size may not represent the region of the kidney from which it comes, as the tube may have become dilated. Most hyaline casts probably come from the Henle loops. Albumin passing through the glomeruli may also coagulate and form hyaline casts. It is probable that a hyaline degeneration may occur in certain pathologic conditions and in acute infection of the epithelial cells of the tubules, and hyaline casts be thus formed. Both cylindroids and hyaline casts are more likely to be found in concentrated and acid urines, as low specific gravity urine and neutral and alkaline urines cause disintegration of these frail structures. Like cylindroids, hyaline casts indicate only kidney irritation and a sluggish urinary flow in some part or parts of the kidneys. Of course the freer the flow of urine, the shorter time will mucus or any other substance remain in the tubule.

High power microscopic examination shows hyaline casts to have many organized particles and not to be absolutely homogeneous.

Not only hyaline, but also epithelial and fine granular casts may be found in the centrifuged urine of normal persons, especially if this urine is first sedimented. However, they usually represent some slight kidney irritation. If hyaline casts are repeatedly found in the urine of the same person, particularly if he is over 40 years of age, and if there are traces of albumin, it may indicate the beginning of chronic interstitial nephritis; but it should be emphasized that hyaline casts can occur with physical strain, with mental anxiety and mental strains that would disturb general metabolism or the circulation, and with any acute infection, even the simplest.

2. Epithelial casts represent hyaline casts with loosened epithelium of the tubules, and the form of the epithelium may denote the region of the kidney in which the casts originated. Irritation or passive congestion may cause this type of casts to occur in slight disturbances, as well as in tubular nephritis.

3. Blood casts show acute kidney congestion or kidney hemorrhage, and are composed of blood cells and serum. Many epithelial, hyaline and finely granular casts may show both white and red corpuscles. Blood casts are most frequent in acute nephritis. When found in hematuria, they show that the bleeding, in part at least, is from the kidney structure. Even when in acute nephritis the blood casts are in large amount, they may not be of serious omen unless the patient is

uremic With signs of uremia and serious kidney congestion, the prognosis is unfavorable

All urines will contain some leukocytes and frequently red cells, which may come from any part of the tract However, unless the urine has been obtained by the ureteral catheter (without injury), or there are blood casts or blood cells in casts, it cannot be positively stated that these blood cells come from the kidney

4 Granular casts are degenerated epithelial casts When there is a diffuse nephritis and degeneration occurs in the epithelial cells of the convoluted tubules, more or less debris is thrown into the lumen of the tubules which, remaining there for some time, causes the production of granular casts, in the beginning, with fine and later with coarse granulations When, with degenerative disease of the epithelium of the tubules, there is a large amount of urine passed, the debris may not remain in the tubules long enough to form casts, consequently such urine, when centrifuged, will show epithelial and granular debris Also, long and rapidly centrifuged urines may have the granular casts broken down, forming debris

5 Fatty or oily casts represent fatty degeneration of epithelial casts They may be composed wholly of fat or of oil, or may be epithelial or granular casts containing oil globules due either to an infiltration or to degeneration of the cell contents They generally indicate a serious diseased condition, and occur when there is chronic nephritis of any type which has been of considerable duration

6 Waxy or amyloid casts are somewhat like hyaline casts, but show amyloid reaction They are not necessarily confined to amyloid infiltration or degeneration of the kidneys, but are signs of severe nephritis, and may be due to a degenerated blood coagulum They are either straight, bent or twisted, and represent molds of the convoluted tubules The hemorrhage may be from the glomeruli, the blood remaining in the tubules, or it may come directly from the walls of the tubules It should perhaps be emphasized that waxy casts do not necessarily denote amyloid disease of the kidneys

7 Serious kidney infection is sometimes accompanied by casts of bacteria in the urine However, before deciding that these casts come from the kidneys, one must be certain that the urine examined is fresh, as rolls of bacteria resembling casts frequently occur in old urine

Casts may come from one or more infected regions of the kidneys, but may represent an acute or chronic disturbance of just one portion They do not disturb the general function of the kidneys, though they must impair that of the parts affected In this relation we should bear in mind the great recuperative power of the kidneys

(*To be continued*)

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies A copy of the rules on which the Council bases its action will be sent on application W A Puckner Secretary

ACETYLSALICYLIC ACID—Acidum Acetylsalicylicum.—Acidum Acetylosalicylicum.—Aspirin—$C_6H_4O(CH_3CO)COOH$, 1 2—The acetyl derivative of salicylic acid

Dosage—From 0 3 to 1 Gm (5 to 15 grains), repeated once in three hours until symptoms of salicylism (ringing in the ears, etc.) are noted It may be administered in the form of a powder, wafers, or capsules If prescribed as a powder, this may be administered by dissolving it in sweetened water, or by placing it on the tongue followed by a swallow of water The powder should be dispensed in wax paper

Acetylsalicylic acid may be obtained by the condensation of acetyl chloride or acetic anhydride with salicylic acid and subsequent purification by recrystallization from chloroform or other suitable solvent

It occurs in small colorless crystals or as a white crystalline powder odorless of acid taste and reaction melting point from 134 to 136 C It is sparingly soluble in cold water gradually decomposing into acetic and salicylic acids rapidly decomposed by boiling water freely soluble in alcohol soluble in chloroform and ether also soluble with decomposition in solutions of alkali hydroxides and carbonates

When 0 5 Gm of acetylsalicylic acid is treated with 10 Cc of warm sodium carbonate solution (10 Gm $Na_2CO_3+H_2O$ in 100 Cc) a clear solution results

When 0 5 gm of acetylsalicylic acid is boiled for from two to three minutes with 10 Cc of 5 per cent sodium hydroxide solution and to the cooled solution 10 Cc of diluted sulphuric acid are added, a crystalline precipitate is produced which after washing and drying responds to tests for salicylic acid and the filtrate has the odor of acetic acid

If to a solution of 0 1 Gm of acetylsalicylic acid in 5 Cc of alcohol 20 Cc of water be added and then a drop of diluted ferric chloride solution (1 volume of ferric chloride test solution to 4 volumes of water) no violet coloration should be produced (salicylic acid)

When 0 5 gm is shaken with 25 Cc of distilled water for five minutes and filtered 5 Cc portions are not affected by hydrogen sulphide (absence of heavy metals) nor with silver nitrate solution (absence of chloride) nor with barium chloride solution (absence of sulphate)

When heated on platinum 0 5 Gm should leave no weighable residue

It should be kept in well stoppered containers

IOCAMFEN—A liquid obtained by the interaction of iodine 10 parts phenol 20 parts and camphor 70 parts, containing about 7 25 per cent free iodine

Actions and Uses.—Iocamfen is said to have the antiseptic and germicidal properties of iodine and also the analgesic, stimulating and antiphlogistic properties of camphor and phenol

Iocamfen is used especially in the treatment and dressing of surgical and traumatic wounds, joint injuries, fractures, infected processes contusions, etc

Dosage—Iocamfen is applied in small quantities directly to wounds, the skin cavities, etc or on tampons or drainage material It should not be applied to wet surfaces

Manufactured by Schering and Glatz New York No U S patent U S trademark No 112 934

Iocamfen Ampules—Each ampule contains iocamfen 20 minims

Iocamfen is a dark reddish brown viscid liquid having a camphoraceous odor Iocamfen is insoluble in water but soluble in all proportions in alcohol ether benzine and liquid petrolatum

Iocamfen like free iodine interacts with fats and waxes its free iodine entering into combination

The free iodine content of iocamfen may be determined as follows About 2 Gm iocamfen is weighed into a glass stoppered flask dissolved in about 25 Cc chloroform about 10 Cc potassium iodide solution (1 10) added and the free iodine determined by titration under agitation with tenth normal sodium thiosulphate solution using starch as indicator

Comparison of Rural and Urban Mortality—In an analysis of the figures shown in the new United States life tables based on the United States Census of 1910 and the mortality statistics for 1909 1910 and 1911 in the original registration states, J W Glover (*Public Health Reports,* Jan 5, 1917) says that the excess of city over rural mortality should receive the attention of health authorities to determine its cause and to what extent it may be reduced Out of 100,000 births of males in the country, 58,117 survive to the age of 60 while among the same number of city births only 43,454 survive to that age Glover says these figures are so astounding that they deserve the utmost prominence Recent life tables, it is said show similar differences in England and Germany The tables also show that the mortality rates among women are lower throughout the entire range of life than for men and that the expectation of life is much greater A striking exception is in the case of women in rural communities Between the ages of 20 and 40 the mortality rate for rural women is almost as great as that for men, except from 25 to 31 in which period it is actually greater The same is true for negro women from the ages of 10 to 20

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SATURDAY, JANUARY 20, 1917

SOME EFFECTS OF EPINEPHRIN ON THE DISTRIBUTION OF THE BLOOD

Early in the investigation of the action of extracts of the suprarenal glands and the preeminently active component, epinephrin, produced by them, it became apparent that this substance can exert a pronounced local vasoconstriction The contraction of arterioles which it brings about has rendered it one of the most powerful local styptics, in the same way not only hemorrhage but also inflammation is diminished in mucous membranes to which solutions of epinephrin are applied locally The first classic researches on the effects of suprarenal extracts injected directly into the circulation showed as the invariable outcome a pronounced rise of blood pressure in the arterial system As the pressor response was apparently brought about by diminution in the caliber of the blood vessels, particularly in the abdominal areas, it seemed more than probable that the blood must be driven more effectively into other areas as the result of such special vasoconstriction It is not surprising, therefore, that it was soon concluded that the function of the suprarenals is so to regulate the blood vessel caliber throughout the body that an adequate circulation to the vital tissues can be maintained with a minimal cardiac effort

The physiology of the suprarenals and epinephrin has grown much more complex since these pioneer investigations were completed about twenty years ago The pendulum of opinion respecting the real physiologic significance — rather than the pharmacodynamic potency — of epinephrin has swung back and forth with each new announcement of experiments For a time it appeared as if the actual participation of suprarenal secretion in the regulation of blood distribution was of doubtful occurrence Gradually, however, the discoveries of the relations of epinephrin to the sympathetic nervous system have made it seem most unlikely that in normal life suprarenal secretion should fail to play an important part We know that it acts preeminently on all the functions innervated by the sympathetic system The action of epinephrin on any organ is always the same as the effect produced by excitation of the sympathetic nerve supply to that organ It may vary in different species, just as in some the stimulation of a sympathetic nerve may cause activity, while it causes inhibition in others Furthermore, the action of epinephrin does not seem to be limited solely to these effects on the sympathetic end-organs Lately the possible physiologic importance of suprarenal secretion has been enhanced by the seemingly well founded claims that the stronger emotions lead to discharge of epinephrin into the circulation in more than normal amounts The mobilization of carbohydrates, the efficiency of muscle, the coagulability of the blood, and other functions are said to be affected in ways which make for physiologic preparedness in times of bodily stress

It has been well said that theoretically any hormone might exercise a profound influence on body functions by shifting the circulation in favor of one organ at the expense of another [1] This has led Hoskins and his collaborators[1] at the Northwestern University Medical School, Chicago, to give renewed attention to the possibilities suggested The subject is, of course, not a new one, and the contradictions reported are numerous The data are in many cases fragmentary and incoordinated, having been obtained from observations on isolated organs or localized structures without due regard to the interrelations which may and doubtless do exist between widely different parts of the body The new studies indicate that, in an intact animal, epinephrin in any general sense is neither a vasoconstricting nor a vasodilating agent It is one or the other, depending on what vessels are involved In some cases, as in the lungs, the effect seems to depend on the dosage Epinephrin injected intravenously in the intact animal generally, though not inevitably, causes in all doses a constriction of the limbs, but when the skin of the part is removed, the contraction is converted to expansion There is active vasodilatation in the muscles, whereas the cutaneous vessels experience vasoconstriction Accordingly, the Chicago investigators point out that one cannot generalize to the effect that the splanchnic vessels are constricted while the peripheral vessels are dilated In the peripheral circulation are included not only the skin but also other less extensive structures which respond by constriction, while observations have shown that the intestine is often dilated The effect of epinephrin in such a structure as a limb is a composite one, the limb as a whole either contracting or expanding, depending on whether vasodilatation in the muscle or vasoconstriction in the skin predominates

Considerable emphasis has been placed recently on the possible part played by an outpouring of suprarenal secretion in promoting muscular efficiency Hoskins, Gunning and Berry suggest that the selective vasodilator effect of epinephrin in skeletal muscle probably accounts to a considerable degree for its favorable influence in improving contractile activity as well as hastening recovery from fatigue To these considerations may be added the newer evidence of long claimed possible physiologic interrelationships between the thyroid and suprarenal tissues in the body Augmented thyroid secretion called forth by stimulation appears to sensitize the sympathetic structures so that they respond more effectively to suprarenal secretion[2] The action of thyroid secretion on sympathetic endings is a selective one, for there is no concomitant increase in excitability of the augmentors of the heart Thus the physiology of the endocrine organs has become involved in a maze of complexities through which the light of intelligible interpretation is only beginning here and there to find its way

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[1] Hoskins R G, Gunning R E L, and Berry E L The Effects of Adrenin on the Distribution of the Blood I Volume Changes and Venous Discharge in the Limb, Am Jour Physiol 1916 41, 513

ACETYLSALICYLIC ACID, NOT ASPIRIN

The Council on Pharmacy and Chemistry publishes a report in this issue giving its reasons for deleting "Aspirin-Bayer" from New and Nonofficial Remedies In order that a standard may be provided, the drug, acetylsalicylic acid, is retained[3] in N N R under its scientific name, acetylsalicylic acid, aspirin appearing as a synonym The attempt on the part of the Bayer Company to perpetuate the monopoly it has had for seventeen years in the United States was briefly discussed editorially in THE JOURNAL, Aug 12, 1916 We quoted from *Printers' Ink*, a magazine devoted to advertising, in part as follows

> "The manufacturers of aspirin are about to launch an extensive advertising campaign to clinch the market as far as possible before the expiration of their patent rights next year The purpose of the campaign is to identify the product *with the trademark of the Bayer Company and to* this extent hamper competition after the expiration of the patent"

It is worth while reminding physicians of the privileges the Bayer Company has enjoyed for so many years, owing largely to our inequitable and crude patent laws, or to their construction First, it should be remembered that practically no other country in the world, not even the original home of the preparation, would grant a patent on either acetylsalicylic acid, the product, or on the process for making that product The United States granted both! As a result, for seventeen years it has been impossible in this country for anybody except the Bayer Company to manufacture or sell acetylsalicylic acid, either under its chemical name or under any other name Neither was it possible for individuals, hospitals or any other institutions to import it, legally, for their own use

Needless to say, the American people have been made to pay exorbitantly for the monopoly our patent office granted this firm Three or four years ago THE JOURNAL, through the American consuls, obtained information regarding the price at which acetylsalicylic acid was sold in foreign countries At that time, acetylsalicylic acid, as "aspirin," was costing American druggists — and of course the American public had to pay still more for it — 43 cents an ounce Just across the border in Canada it sold for one-third the price asked here In some of the foreign countries, acetylsalicylic acid under its scientific name could be purchased by the druggists of those countries at from one-sixth to less than one-tenth the price that it cost American druggists Here are some of the figures

Austria-Hungary	4 cents an ounce
British Isles	6 cents an ounce
Denmark	4 cents an ounce
France	4 cents an ounce
Germany	4 cents an ounce
Holland	4 cents an ounce
Norway	4 cents an ounce
Sweden	4 cents an ounce
United States	43 cents an ounce

Not content with the iron-bound monopoly which it had been granted through our patent laws, the company attempted further to clinch its exclusive rights by giving the preparation a fancy name, "aspirin," and getting a trade-mark on this name The patent on acetylsalicylic acid expires next month (February, 1917) After its expiration the product, and its method of manufacture, become common property American manufacturers will now be able to do what manufacturers in other countries, other than the patentees, have long been doing — make and sell acetylsalicylic acid[4]

Unfortunately, it is extremely improbable that any American manufacturer will market acetylsalicylic acid under the name aspirin, although we believe they would have a legal right to do so The courts have held in related instances that when a patented article has been known during the life of the patent under a trade-marked name, with the expiration of the patent the name as well as the product becomes common property The classical "Singer Sewing Machine" decision and the lanolin case are in point The Bayer Company, through a widespread newspaper advertising campaign, seems to be attempting to perpetuate its seventeen-year monopoly by leading the public to believe that there can be only one brand of genuine acetylsalicylic acid on the market — that made by the Bayer Company

The firm will, of course, continue to manufacture and advertise the product under the name "Aspirin-Bayer," and will probably charge high prices for it, as was the case with phenacetin (acetphenetidin) In any event, physicians hereafter should do what for a long time we have been advising should be done, namely, prescribe the compound under its scientific name, acetylsalicylic acid They should do this if for no other reason than that they would be using the name which carries with it a reminder of the composition of the preparation Of course, for those who have been writing "aspirin" it will be rather difficult to write "acetylsalicylic acid," just as a quarter of a century ago it was difficult for the physician of that day who had been using the copyright name "antifebrin" to write "acet-anilid," a name which nowadays is easy, even for laymen

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[2] Levy, R L Studies on the Conditions of Activity in Endocrine Glands IV The Effect of Thyroid Secretion on the Pressor Action of Adrenin Am Jour Physiol 1916 **41**, 492

[3] See page 213, this issue

[4] The Bayer people may try to convey the impression that 'Aspirin is pure and reliable whereas other brands are not. Since acetylsalicylic acid is a definite chemical *compound*, there is no more likelihood of this being sophisticated than there is of quinine being adulterated Furthermore the Council in accepting acetylsalicylic acid for New and Nonofficial Remedies has provided standards of purity which will insure a uniform product The brand of one firm—Powers Weightman Rosengarten Co, of Philadelphia has been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies 1917

GASES, FIRES AND EXPLOSIONS IN MINES

Among the dangers involved in the hazardous occupation of coal mining, those attaching to the gases which may contaminate the air are prominent Up to and including 1912, in 275 coal mine accidents in the United States, in which five or more men were killed, involving a total loss of 6,777 men, 5,111, or about 75 per cent, were killed by gas and coal dust explosions, the next largest category of fatalities including those by mine fires and amounting to somewhat over 15 per cent[1]

Black damp or choke damp, the miner's term for what the chemist discovers to be carbon dioxid, is almost always present in mines in quantities exceeding that in which it appears about us under ordinary conditions of life As carbon dioxid is a product of decomposition, of combustion, and of respiration in man and animals — all factors which play a part in mining operations — the accumulation of this gas in the absence of good ventilation can readily be understood The essential danger of carbon dioxid lies in its possible interference with respiration, on combustion it has at most an antagonistic effect

There are other possible poisonous mine gases, however, such as hydrogen sulphid, or stink damp, and carbon monoxid, the latter of which is highly poisonous even in small quantities For the detection of harmful proportions of the latter, Haldane recommended the use of birds and mice, which succumb to a concentration of carbon monoxid at which men show no symptoms of distress Hydrogen sulphid may be found occasionally as an occluded gas in coal seams In other mines it is usually the product of decomposition of the sulphid-containing pyrites in the presence of moisture When mixed with air it is violently explosive

In mine fire explosions it is undoubtedly methane, hydrogen and carbon monoxid which play a significant role How these gases, dangerous because of their explosibility when mixed with air, arise in mines is not so widely understood Methane, also known as carburetted hydrogen or marsh gas, is a product of decomposition of organic matter and thus can come from pores and pockets in coal, at ordinary temperatures, and can also be produced by heat reactions Hydrogen and carbon monoxid are not found normally in coal mines, hence their presence in the gases of mines which are on fire is due to the destructive distillation of the coal or wood, the action of carbon dioxid and hot coal or wood, and the action of steam on hot carbon The experts of the Bureau of Mines have pointed out in a recent technical paper[2] that in a fire above ground, combustion may be complete because sufficient air can be supplied to the burning material to permit the formation of carbon dioxid and water as the principal products of combustion On the other hand, a mine fire, as a rule, is quickly covered with fallen coal, slate, timber, etc, and the oxygen content of the mine atmosphere is more or less rapidly diminished, and oxygen does not have ready access to the burning fuel As a consequence, combustion soon becomes incomplete, and intermediate products of combustion, such as carbon monoxid, are formed The character and quantity of the gases produced differ according to the stage of the fire, from the time it is first noticed, through the period during which it is being fought, and up to and through the time it is sealed, if sealing becomes necessary The changes which take place may be studied by comparing mine fire combustion processes with changes which coal undergoes, and the gases which are given off when the coal is subjected to different combustion processes above ground Such studies have to do with the destructive distillation of coal in retorts, as in making illuminating gas, the manufacture of coke in coke ovens, the production of producer gas, and the burning of coal in boiler furnaces In mine fires, chemical reactions may occur which are related to the reactions which take place during any of the foregoing well known processes, from that of complete combustion, as in properly fired boiler plants, to destructive distillation, as in gas-house retorts, in which practically no oxygen enters into reaction except that from the coal It is thus that methane, carbon monoxid and hydrogen in particular arise

Usually the methane which makes a mine gaseous is largely responsible for explosions which take place when ventilation is stopped, but the other inflammable gases produced by fire may likewise become largely responsible According to Burrell and Oberfell,[2] methane is the most dangerous gas as regards low limit of explosibility, whereas carbon monoxid and hydrogen are especially dangerous because of their wide explosive ranges In the low-temperature destructive distillation of coal in mine fires, the principal danger is from methane As regards a mine fire which has been burning for some time, it is probable that when the oxygen of the air has been so depleted that products of destructive distillation appear, the embers will have cooled to a point at which the low-temperature products are given off in largest quantity

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[1] Kober and Hanson Diseases of Occupation and Vocational Hygiene Philadelphia, 1916 p 619

[2] Burrell G A and Oberfell G G Explosibility of Gases from Mine Fires, Bureau of Mines Technical Paper 134 Washington, D C 1915

According to the government experts, carbon monoxid formed by the reducing action of hot carbon on carbon dioxid is a highly important agent in some mine fire explosions, but it is probable that water gas (carbon monoxid and hydrogen), produced by the action of steam on hot carbon, plays a relatively unimportant role in causing mine fire explosions

THE HEALTH OF MUNITION WORKERS IN RELATION TO THEIR WORKING OUTPUT

The European war has forced attention in an acute way to the problem of the working day, which was recently referred to in The Journal[1] as being primarily a question in physiology It is at first thought almost unbelievable that in a grim struggle in which life is being sacrificed daily in the most reckless and ruthless manner the participants should attempt to make detailed inquiries respecting the relation of conditions of work to the efficiency of the worker Yet this has been done in a variety of ways, for all the combatants realize in this war, as never before, that the dictates of science demand just consideration in a competitive struggle of the most intense description

Overwork which leads to the inefficiency attributable to undue fatigue may be as detrimental as the indifference of the "slacker" who, though fully able to work, fails to meet his working obligations For this reason, evidently, the British minister of munitions has appointed a committee "to consider and advise on questions of industrial fatigue, hours of labor, and other matters affecting the personal health and physical efficiency of workers in munitions factories and workshops" Among the memoranda already published by this committee, a recent memorandum prepared by Dr H M Vernon[2] of the University of Oxford gives instructive statistical information concerning output in relation to hours of work in munition factories under government supervision Many women, for example, were supposed to work more than seventy hours a week in some of the munition plants An actual determination of the output of these employees before and after the reduction of the hours of work under otherwise comparable environmental conditions leaves little doubt that, even aside from any physiologic benefit to the working individual, a great gain results in the fact that as much or even more was actually accomplished in the shorter period Thus, in speaking of one group, Vernon states that it is probable that the sixty hours of work a week were still too many to give the best total output, but they justify the statement that, in order to attain a maximum output, women engaged in moderately heavy manual labor should not work more than sixty hours a week The conclusion derived from observations is that an equally good total output could be maintained if the actual working hours were reduced to fifty-six or less a week Vernon appreciates that it might be thought that the great improvement in hourly output under the shorter hours' regimen was due, partly or wholly, to increased skill of the operatives or improvements in the machinery Neither of these hypotheses can be substantiated

Further proof of the advantage of shorter hours was afforded by the output data of some of the operatives on an earlier occasion One group of seventeen worked only from 51$\frac{8}{10}$ to 62$\frac{6}{10}$ hours a week for five weeks in June and July, and during the last three weeks of this period their hourly output was 18 per cent greater than that of another group of fourteen operatives who were working the usual long hours Subsequently, when the two groups worked the same long hours, their output was identical

The desirability of considering the type of work involved and perhaps even the individual in the regulation of working conditions — a feature emphasized by Lee[3] — is likewise expressed in Vernon's observations He concludes that the hours of labor should be varied between wide limits according to the character of the work performed This obvious fact is not realized by many managers of munitions works, and the tendency is usually toward uniformity of hours for all types of labor and for workers of both sexes The British data suggest that not only are women unsuited to the heavier types of work, but that even when engaged on the moderate and light types they are unable to stand such long hours as the men Several sets of operatives, both male and female, were kept under close observation for many days in order that their powers of application might be investigated Men engaged in boring the powder chamber and in turning and finishing shells were found, almost without exception, to stick to their work with admirable persistence, seldom resting even for a minute On the other hand, women engaged in turning fuse bodies rested for various periods which in the aggregate amounted to one and one-half hours out of the twelve-hour day, and over an hour out of the ten-hour day, in addition to the hour or so of compulsory rest required for attention to their lathes at the hands of the tool setters About half an hour of the voluntary rest pauses occurred at the beginning and close of work, but much of the remaining hour or half hour was probably due, not to idleness on the part of the women, but to fatigue, and to an instinctive knowledge that short rest pauses helped to prevent undue fatigue

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[1] Physiologic Aspects of the Working Day Problem, editorial The Journal A M A Jan 13 1917 p 122

[2] Vernon H M Statistical Information Concerning Output in Relation to Hours of Work Health of Munition Workers Committee, Memorandum 12, 1916

[3] Lee F S Is the Eight Hour Working Day Rational? Science, Nov 24 1916 p 727

In considering the specific facts related in the British memorandum, it must be remembered that the work is being conducted under great stress Realizing this, Vernon says that the hours still in force necessarily impose a great strain on the operatives, and there can be no doubt that in many instances the strain is too great to be borne, and that the operatives are compelled to drop out altogether That is to say, the data quoted relate to the fittest who were strong enough to survive in the struggle, and not to the general mass of workers of all classes who tried to do munition work It is almost impossible to discover the extent of this weeding out, but it is inevitably considerable Hence the best hours of work, suited for peace times, are in every case considerably shorter than those mentioned, though the principle of graduating the number of hours of labor to the type of work performed still holds with undiminished force

Current Comment

CREATINURIA IN CHILDHOOD

Although creatinuria in adults is commonly believed to belong essentially to the pathology of metabolism, the excretion of creatin along with creatinin in the urine of children has been accepted as a phenomenon of normal character ever since it was carefully studied by Rose [1] Creatin is usually excreted by children until the age of puberty It forms a fairly large component of the total creatin plus creatinin present in the urine at this early period of life No satisfactory explanation for this peculiar difference between the metabolism of the young and the adult has been given until recently, when Powis and Raper[2] made observations on the incidence of creatinuria which may help to throw light on the problem They found in a study of the diurnal and nocturnal variations in the excretion of creatinin and creatin in children that the rate of creatinin output is slightly less during the night than during the day More striking is the fact that the rate of creatin excretion is highest during the morning, less during the latter part of the daytime, and very small at night The chief factor in the output of creatin appears to be the state of rest of the skeletal muscles associated with the temporary cessation of voluntary control which occurs during sleep Powis and Raper conclude that the results so far obtained are most simply explained by assuming that creatinuria in children is due to the immaturity of the muscles Creatin is not entirely an index of endogenous metabolism in the way that creatinin is, because the two do not show parallel variations This may be due to the fact that creatin is utilizable, whereas creatinin is not The production of creatin at night is probably lower than during the day, and anabolic processes at rest, by utilizing or destroying part of it, cause a further diminution in the amount excreted Sleep is apparently not the only factor involved, since creatin excretion during the afternoon is less than during the morning In a case of amyotonia congenita studied by Powis and Raper[2] at the University of Leeds, the excretion of creatinin per kilogram of body weight was much lower, and that of creatin much higher, than for a normal child of the same age Morse[3] has found a high creatin content in the urine of children with diseases involving atrophy These involved less extreme cases of muscular immaturity than amyotonia congenita, in which the muscles are soft, toneless and underdeveloped Putting the known facts together with these observations, the British investigators conclude that the fully matured muscle produces only creatinin, and no creatin, or only such small amounts that utilization processes prevent their coming to excretion As the child develops, the creatinin coefficient gradually increases, and the creatin diminishes until it finally disappears This hypothesis will doubtless be tested further by students of metabolism in adolescence

TRAFFIC ACCIDENTS

At least 60 per cent of all accidents are street and traffic accidents Figures just announced by the Bureau of Records of the Department of Health of the City of New York show that there were 18 per cent more deaths from accident during the first eleven months of 1916 than during an equal period in 1915 The experience of New York is not unique in regard to street accidents The figures for Chicago and other large cities show the same alarming increase The "safety first" campaign has not yielded the same satisfactory results in street accidents that it has in industrial establishments and for railroads The reason is plain cities are not managed on the business principles industrial establishments employ Perhaps another factor is that "safety first" signs have become so common that pedestrians no longer pay attention to them When cities study these problems in the same scientific manner that private corporations study them, and apply the remedy indicated, the number of preventable traffic accidents will decrease

A MEDICAL METAPHOR

Stump speakers, Chautauqua lecturers and graduation orators utilize the classics, poetry and romance to add polish to their effusions, they seldom go to the sciences, and least of all to medicine, for this purpose, as did Congressman Bennett of New York, who, recently, in a discussion of a proposed rule, "brought down the House' with the following

> What does this rule do? In the first place, it performs a cesarean operation on the Committee on Interstate and Foreign Commerce, and takes from it a resolution that it has a perfect right to show its parturitive ability by itself delivering

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[1] Rose, W C Experimental Studies on Creatine and Creatinine, III, Excretion of Creatine in Infancy and Childhood, Jour Biol Chem, 1911, **10**, 265

[2] Powis, F, and Raper, H S Creatinuria in Children, Biochem Jour 1916, **10** 363

[3] Morse M Creatine in Atrophy Jour Biol Chem 1916 **24**, xxviii

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH ETC)

ALABAMA

Unified Health System for Birmingham—After a conference between Dr Francis E Harrington the new health officer of Jefferson County, and Dr Cecil D Gaston city health officer of Birmingham, it was announced that Dr Gaston would continue to act as city health officer According to the plans for a unified health system prepared by Surg Carroll Fox, U S P H S, the share of expense of the county for the new system will be about $30,000 'The unified plan provides that the health supervision of the Birmingham public schools now handled by the board of education, shall be placed under the supervision of the county health officer

ARKANSAS

Birth and Death Registration—The Supreme Court of Arkansas has decided that local registrars of births and deaths appointed by the state registrar of vital statistics are state officers and cannot be paid by the counties In that respect the law recently passed providing for the appointment of such local registrars is held to be unconstitutional The opinion is published in full in *Public Health Reports*, Jan 5, 1917

CALIFORNIA

State Society Meeting—The Medical Society of the State of California will hold its next annual meeting at the Hotel del Coronado, San Diego, April 17

Psychopathic Hospital Needed—The California Society for Mental Hygiene recommends a law providing $500,000 for a psychopathic hospital to be conducted as a unit of the Affiliated Colleges under the management of the University of California The association also endorses the establishment of a state colony in southern California for mental defectives, to cost $250 000 The following officers were elected president Dr George E Ebright, San Francisco, vice presidents, Drs Robert L Richards, Talmadge Lillian Martin and Fred W Hatch Sacramento, secretary, Miss Julia Green, and treasurer, Mr Knox Maddox

Personal—Dr Harry J Pittock Pasadena, resident physician of the LaVina Sanatorium, has accepted a position as assistant to Dr Floyd L R Burks, Fresno——Dr George B Somers has been reappointed a member of the board of health of San Francisco——Dr George F Pache Angels Camp is under treatment at St Joseph s Hospital Stockton for septicemia——Drs Howard Wright, San Francisco and Fred Cozelman Los Angeles have been appointed to the medical staff of the Stockton State Hospital——Dr Edward H Julien San Francisco was seriously injured in an automobile collision, December 28——Dr George H Derrick Oakland was held up, December 23, and robbed of his watch fob and money——Dr Judson Liftchild Ukiah has resigned as superintendent of the Mendocino County Farm and Hospital after ten years service

DISTRICT OF COLUMBIA

Education of Tuberculous Children—The board of education has appealed to the public for $1 000 for fifty-nine tuberculous children recently excluded from school Buildings and teachers are available, but there is no fund for transportation blankets clothing or food It is expected that Congress at the present session will make provision for the education of these children after the present school year

IDAHO

Personal—Drs D E Everette and Susie V Standard Burns Ore have moved to Nampa——Dr Ralph Falk Boise, has resigned as secretary of the state board of health——Dr Ellis Kackley Soda Springs, has succeeded Dr Oscar B Steely, Boise, as a member of the state board of health

ILLINOIS

State Hospitals Society to Meet.—A meeting of the Illinois State Hospitals Medical Society will be held January 25 and 26 at the Chicago State Hospital Dunning Ill.

Sanatorium Directors Named—Rev John P Quinn, Ottawa, Mrs Virginia LeRoy, Streator, and Dr Kimball W Leland, Utica, have been appointed the first board of directors for LaSalle County Tuberculosis Sanatorium, and have been given authority to select the site for the building, and to determine the kind of structure to be erected, the plans to be subject to the approval of the state board of health

Health Consolidation in Illinois—In the interest of economy and better administration Governor Lowden has adopted a general policy for the reorganization of the executive department of the state government and the consolidation of as many departments and bureaus as possible As a part of this policy, plans are being considered for the assembling in a department of health of the present state board of health, the state board of pharmacy, the state board of dental examiners, the nurses examining board, the new optometry board and others A bill providing for a department of health with a commissioner at the head will probably be introduced early in the present session of the legislature.

Chicago

Women Hear About Health Insurance—The Medical Women s Club of Chicago gave a dinner and reception at the college club rooms of the Chicago College Club, January 10 at which Dr William A Evans spoke on "Health Insurance'

Annual Meeting of Visiting Nurse Association—At the twenty-seventh annual meeting of the Visiting Nurse Association of Chicago, held at the Blackstone Hotel January 17, Dr Hugh T Patrick, on behalf of the committee on the after-care of infantile paralysis delivered the principal address Reports were made by the various committees, and officers and directors for 1917 were elected

INDIANA

New Officers—At the annual meeting of the Fort Wayne Medical Society, December 5 Dr Charles G Beall was elected president, Dr Allen Hamilton vice president, Dr Miles F Porter, Jr, secretary, and Dr Elmer E Morgan, treasurer

Care of Mental Defectives—The board of state charities in its biennial report to the legislature, recommends adequate care and prevention for mental defectives The five hospitals for the insane in Indiana are now so crowded that it is impossible to classify the patients Instead of enlargement of existing hospitals or the building of new ones, the board recommends the purchase of farms a short distance from the hospital, yet near enough to be under its supervision A beginning has been made in the purchase of a colony farm near the Eastern State Hospital, Richmond

Personal—Dr Loren A Hyde Indianapolis, has succeeded Dr Benjamin S Potter as superintendent of the Marion County Hospital for Incurable Insane at Julietta——Dr Brown S McClintic, Peru, after three years' service with the Russian army, is on his way home——Dr Paul F Martin, Indianapolis, who went abroad last May under the auspices of the American Medical Relief Expeditionary Association, is now in charge of 2 000 beds in the Pardubitz Hospital Austria, which has a capacity for 10 000 patients——Dr Noah D Berry, Muncie was knocked down by an automobile recently and suffered painful injuries——Dr Arthur L Oilar who has been ill with appendicitis in the Methodist Hospital, Indianapolis, is reported to be improving——Dr E Trent Stout Upland, has started for the border in command of an ambulance company

IOWA

Personal—Dr Ella Blackburn, assistant physician at the State Hospital, Mount Pleasant has accepted a position as assistant physician at the Kenilworth Sanitarium, Kenilworth Ill to succeed Dr Margaret S Grant who has been appointed pathologist at the Lutheran Hospital, Fort Wayne, Ind——Dr Charles E Nelson Centerville, suffered severe injuries in a collision between streets cars in Burlington, December 26——Dr Thaddeus C Cooper, Ogden will leave in a short time for six months' work with the English forces on the western front——Dr Adolph M Evetz, Carroll was painfully injured in a runaway accident, December 22

State Supply of Antitoxins—The state board of health has contracted for a year's supply of antitoxin which will be distributed from 250 stations The board expects to increase the number of stations to 300 The state contracts for the antitoxin at less than one fourth the rate to the drug trade and then retails it at cost. The new prices for diphtheria antitoxin are 1 000 unit package, 50 cents, 3 000 units, $1.25, 5,000 units, $1 80, 10,000 units, $3 35 Tetanus antitoxin will be sold at the following prices 1,500 units, $1 67, 3,000 units, $2 87, 5,000 units, $4 Typhoid vaccine in the three-ampule package will sell for 28 cents These prices are lower than last year Smallpox vaccine has also been reduced in price

KENTUCKY

License Revoked—It is reported that at a recent meeting the State Board of Health of Kentucky revoked the license of Dr John Karagiozian of Louisville on the ground of his dispersing narcotic drugs for purposes other than their legitimate use

Personal—Drs Lewis S McMurtry, Hugh N Leavell and Clarence H Harris have been appointed, by the state board of health, members of the Jefferson County Board of Health for two years——Dr Philip E Blackerby, Erlanger, has been appointed registrar of vital statistics by the state board of health, to succeed Dr W Lucien Heizer, Bowling Green, recently appointed secretary of the state tuberculosis commission

MARYLAND

New Superintendent for Sydenham Hospital—Dr Harry H Johnson, Baltimore was appointed superintendent of the Sydenham Hospital, January 2, succeeding Dr John F Hogan, Baltimore, appointed second assistant commissioner of health

Rare Books Presented to Johns Hopkins Library—A number of valuable and rare old medical books the collection of which covered thirty years, have been given to the Johns Hopkins University library by Dr Henry J Berkley, clinical professor of psychiatry in the Johns Hopkins Medical School

Personal—Dr John T O'Mara, Baltimore, has been appointed physician to St Mary's Industrial School, to fill the vacancy caused by the recent death of Dr Alexander H Saxton, Baltimore——Dr Archibald C Harrison is a patient at St Joseph's Hospital where he recently underwent an operation for appendicitis——Dr Joseph I Lawrence, formerly associated with the American Ambulance in Paris, read a paper before the Baltimore Medical Society, January 5 on The Method of Treating Wounds as Practiced by Carrel"

Annual Meeting of the Eudowood Board—Dr Henry Barton Jacobs, Baltimore, president of the board of directors of Eudowood Sanitarium, points out in his report the need of a nurses' home and advantages of the development of the farm colony into an industrial colony in which shops could be established and men could pursue their trades while regaining their health——Dr Martin F Sloan, Towson, the superintendent, stated that 302 patients had been treated, 200 of whom had been discharged Of these, seventy-nine were able to return to their former work

Hunterian Laboratory Opened—The Hunterian Laboratory of Johns Hopkins Medical School, the dream of the foremost physicians and surgeons of Johns Hopkins Hospital years ago, has been completed and is now formally opened The building cost about $115,000 Its erection was made possible through the munificence of the Rockefeller Foundation The scientific equipment alone cost many thousands of dollars The purpose of the laboratory is to facilitate the work of the men engaged in the highest form of research work Tunnels connect the laboratory with the medical school and the physiologic building On the first floor are the medical library and the department of art as applied to medicine Work at the laboratory is directed by a committee of professors and instructors of the medical school Dr Milton C Winternitz is chairman of the committee, and has a laboratory on the fourth floor The second floor has been leased to the Carnegie Embryological Institute The third floor will be devoted to work in clinical medicine and children's diseases The pathologic department will be located on the fourth floor

Commission to Study Feebleminded—After a conference with Dr Arthur P Herring, Baltimore, secretary of the State Lunacy Commission, the governor has announced that he will appoint a commission to study causes of mental defectiveness and to suggest preventive methods The thirty-first annual report of the lunacy commission shows that there are at present 5,065 patients in all the institutions in Maryland, public and private The total number under treatment during the year was 7,048, and 2,215 patients were admitted to the institutions during 1916 Of this number about 25 per cent were discharged as recovered The ratio of the insane to the population in Maryland is 1 270 The State Lunacy Commission asks that the investigating commission be composed of two members of the last legislature, one or more of the superintendents of the state hospitals for the insane and feebleminded, a representative of the state and city public school boards, a representative of the State Board of Penal Control, the secretary of the lunacy commission, the secretary of the state board of health, and one or more persons who have given special attention to the subject in some of its phases The governor also announced his intention of later appointing a commission to study and report on the tuberculosis situation in Maryland

MICHIGAN

Physician Fined—Dr Lemen L Harrison, Niles, charged with neglecting to notify the health authorities of a case of scarlet fever, pleaded guilty and was fined $10 and costs

Personal—A farewell reception was given in honor of Dr Gale W Huber, Detroit, city physician at the Receiving Hospital, December 4——Dr Robert A McGregor, Jackson, has been appointed state prison physician——Dr William H Cressy, who has been serving in the Russian Medical Corps, is home on leave and is visiting in Grand Rapids——Dr Henry T Sethney, Menominee, is ill with diphtheria

MISSOURI

Personal—Dr William E Minor, Kansas City, has recovered from an operation for appendicitis——Dr Eugene H Bullock, Edina, has been selected as superintendent of State Hospital No 2, St Joseph, succeeding Dr William L Whittington——Dr Hasbrouck Delamater, Kansas City has been appointed full time health officer of St Joseph——Dr Austin B Allen, Marysville, has retired after nearly forty years of practice He will spend several months in southern California

St Louis

Gifts to Society—The heirs of Dr Charles H Klie have presented a bust of Aesculapius and a number of volumes to the library of the St. Louis Medical Society——Vice President William H Stauffer has presented a clock to the society

The Workman's Compensation Law—The meeting of the St Louis Medical Society, January 13, was devoted to the proposed Workman's Compensation Law for Missouri, which comes before the legislature for action this month or February The subject was presented by Dr Malcolm A Bliss

Personal—Dr Hugo Summa will spend several months in California——Dr Malvern B Clopton, associate in surgery in Washington University Medical School, who has been on duty with the American Ambulance in Paris, delivered an illustrated lecture recently on "American Ambulance Work in Paris" at the annual meeting of the Pilgrims' Congregational Church Brotherhood——Dr W H Wiedemann will deliver a lecture before the St Louis Academy of Medicine, January 29, on "Chemistry of High Explosives and Poisonous Gases as Used in the European War"——Drs Walter C G Kirchner Lux H Bock, Benjamin W N Klippel and Allan A Gilbert have been appointed to the St Louis Unit of the American Physicians' Expeditions Committee

NEW JERSEY

Personal—Dr Albert Pittis, Plainfield is reported to be seriously ill with septicemia, due to an operation wound, in the Huhlenberg Hospital, Plainfield——Dr Millard Knowlton, health expert and publicity agent for the state department of health, Trenton, has resigned——Dr Charles S Braddock, Jr, Haddonfield, is reported seriously ill in New York as the result of a cerebral hemorrhage——Howard E Winter, Plainfield, has been appointed a member of the state department of health, to succeed the late Dr John R Everett, Trenton

NEW YORK

Hospitals for Insane Overcrowded—The State Hospital Commission reports that $2,000,000 a year for the next five years must be spent to provide for the insane in New York There are 34,000 insane persons in the state hospitals, which have a normal capacity of 28,000 The commission favors the construction of a new hospital at Mohansic and of new buildings at Marcy, near Utica, where 1,500 of the insane of New York City could be sent

New York City

Health Department to Furnish Pneumonia Serum—The city department of health announces that it will supply for the treatment of lobar pneumonia a serum perfected by the Rockefeller Institute of Medical Research

Health Department Will Examine Cancer Tissue—The budget of the department of health for 1917 provides for a pathologist who will examine tissue for cancer diagnosis The work will be conducted under the bureau of laboratories as soon as the details can be arranged

Staffs of City Hospitals Dine—The medical staffs of the nine hospitals of the department of charities, about 450 physicians, dined recently at the Hotel Astor Commissioner John A Kingsbury was toastmaster Among the speakers were Mayor Mitchell, Comptroller Prendergast, and Drs James J Walsh and Orrin S Wightman This is the first time that all the attending and house physicians of the city hospitals have been called together

Report of Charity Organization Society—The report for the fiscal year, ending Sept 30, 1916, shows that while practically the same number of persons received aid as during the years of 1912 and 1913, the years immediately preceding the period of widespread unemployment, there has been an increase in the amount of illness encountered In 3,000 families 2,016 cases of illness were found, including tuberculosis, respiratory and digestive diseases, rheumatism and paralysis In 198 instances there were mental defects, and in about 20 per cent of the cases alcoholism and the use of drugs were complicating problems

Personal—Dr Hermann M Biggs, state commissioner of health, has been granted an indefinite leave of absence on the urgent request of the Rockefeller Foundation, that he may go to France to study the tuberculosis problem there and organize measures to combat the spread of the disease in that country Dr Biggs is accompanied by Dr Alphonse R Dochez of the Rockefeller Institute——During the absence of Dr Biggs, Dr Linsly R Williams, deputy health commissioner, will be the acting commissioner——Dr Alfred E Shipley, Brooklyn, has been appointed secretary of the board of health, to succeed Eugene W Sheffer, who was retired, January 1, after more than twenty years of service——Dr John S Billings, Jr, deputy commissioner of health, and director of the bureau of preventable diseases, has resigned, to take effect May 1 Dr Billings has been in the service of the city for more than twenty years——Dr Woods Hutchinson sailed on the *St Paul* for Liverpool, January 13

OHIO

Hospital Closed—The Stamm Hospital, Fremont, was closed December 30, for the first time in sixteen years This leaves Fremont without a hospital of any kind

Hospital Corpsman Dies—J S Clifton, a former medical student in the Ohio State University, and a member of Ohio Field Hospital No 2, died from pneumonia at the base hospital, El Paso Texas, December 21

State Board Meeting—At the annual meeting of the State Medical Board in Columbus, January 2, Dr John H J Upham, Columbus, was elected president, Dr John K Scudder, Cincinnati, vice president, Dr George H Matson, Columbus, secretary (reelected), and Dr Sylvester M Sherman Columbus, treasurer (reelected) Eugene C Waters, Chillicothe, was appointed on the osteopathic committee, succeeding E R Booth, Cincinnati

Personal—Dr David E Sheehan, director of safety of Cuyahoga Falls, has resigned to accept the superintendency of a clinic in the dental school of the Western Reserve University, Cleveland——Physicians of Nelsonville have presented Dr Isaac P Primrose with a handsome leather chair, in recognition of the completion of fifty-eight years of practice in Nelsonville and vicinity——Dr John E Monger, Greenville has been appointed state registrar of vital statistics——Dr Martin Stamm Fremont, will sail for South America, January 28

Cincinnati

Appropriation for Sanatorium—The county commissioners of Hamilton County have appropriated $25 000 for the Cincinnati Tuberculosis Sanatorium

Medical Reserve Corps Division Organized—The Cincinnati Section of the Association of the Medical Reserve Corps U S Army, organized, December 7, and elected Lieut Robert D Maddox president, Lieut Goodrich R Rhodes, vice president, and Lieut Elmer A Klein secretary-treasurer

Personal—Dr Wade W Oliver, a member of the staff of physicians appointed by the Rockefeller Foundation to study disease in South America, who was taken ill with appendicitis while in Buenos Aires is making a satisfactory recovery after an operation——Dr Ernest Zueblin, professor of medicine in the University of Maryland, Baltimore, has accepted a position on the faculty of the Medical Department of the University of Cincinnati, and will be director of the tuberculosis service at the Public Hospital——Drs Charles A L Reed and John E Greiwe have resigned as members of the staff of the Cincinnati General Hospital——Dr Edward F Nippert, of the house staff of the Cincinnati General Hospital will sail for Germany this month for service in a hospital unit——Dr Gustav A Hinnen has resigned as a member of the junior staff of the otologic service at the Cincinnati General Hospital

PENNSYLVANIA

Record of Pennsylvania Railroad—On the Pennsylvania lines east of Pittsburgh 196,294 146 passengers were carried last year without a fatality, and in the last four years 616,626,957 persons have been transported without loss of a life On the entire system of the Pennsylvania Railroad, east and west of Pittsburgh, three years have passed without the loss of a passenger's life, and in this period 553,890,063 persons have been carried a total of 15,000,000,000 miles by 9,000,000 trains over 12,000 miles of railroad and 27,000 miles of trackage

Philadelphia

Estimates Invited for Institution for Feebleminded—The Department of Health and Charities has invited estimates on four dormitories and connection corridors at the Philadelphia Institute for Feebleminded, Byberry Farms

Council Reconsiders Omission of Money for Nurses—An ordinance was introduced, January 4, in the common council to provide $25,000 to reemploy the nurses who were engaged until about a week ago in caring for convalescents from infantile paralysis, but who were dropped for lack of funds to pay them

Personal—Dr W Wayne Babcock was operated on for removal of the appendix, December 15, at the Samaritan Hospital——Dr John K Mitchell, who has been confined to his home with heart trouble, has greatly improved——Dr Richard H Harte addressed the Philadelphia Association Medical Reserve Corps, U S Army, January 19, on the "American Red Cross Base Hospital"

Banquet for Dr Jackson—The Philadelphia Laryngological Society will tender a dinner, January 23, to Dr Chevalier Jackson, Pittsburgh, recently called to the chair of laryngology of the Jefferson Medical College to succeed the late Dr D Braden Kyle Dr Jacob Solis-Cohen will make the address of welcome Dr J Chalmers DaCosta will represent Jefferson Medical College Dr Edward Martin, the University of Pennsylvania, and Dr Judson Daland, the Medico-Chirurgical College Dr Hobart A Hare will act as toastmaster

SOUTH CAROLINA

Course in Public Health—The Medical College of the State of South Carolina has provided a course of lectures in public health The first lecture in the course was delivered by State Health Officer James A Hayne Other lectures will be given during the season

Personal—Dr Luther A Riser Columbia, has been appointed assistant in the field work of the United States Public Health Service——Drs Charles W Kollock, A Johnston, Buist, and Ernest C Baynard, Charleston have been elected members of the Roper Hospital Fund Commission

New Officers—The South Carolina Medical Society, Charleston, December 27 president, Dr Lane Mullally, vice president, Dr Edward Rutledge, secretary, Dr Henry P Wagener and treasurer, Dr Daniel L Maguire——Sumter County Medical Association December 26, president, Dr Thomas R Littlejohn, vice president, Dr Archie China, and secretary-treasurer, Dr Marvin L Parler——Spartanburg County Medical Association at Spartanburg, December 29 president, Dr James E Edwards, vice president, Dr W Boykin Lyles, secretary, Dr L Rosa H Gantt, and treasurer, Dr Walter B Lancaster

TENNESSEE

New Officers—At the annual meeting of the Memphis and Shelby Counties Medical Society, December 19 Dr William Britt Burns was elected president, Dr William F Clary, vice president, Dr Robert H Miller, secretary, and Dr W Battle Malone, censor, all of Memphis

Personal—Dr W Scott Farmer, Cookville, has been elected superintendent of the Central Hospital for the Insane, near

Nashville, succeeding Dr Albert E Douglas, Nashville, resigned ——Dr Harold S Hulbert, Ann Arbor, has been selected by the state board of control to complete the survey of the Tennessee hospitals for the insane, and also a county survey ——Dr Bryce W Fontaine, Memphis, has been appointed representative of the Memphis and Shelby Counties Medical Society on the directorate of the Memphis Antituberculosis Society

WASHINGTON

State Board Election—At the annual meeting of the State Board of Medical Examiners, held in Spokane, January 2 Dr Royal A Gove Tacoma, was elected president, Dr Daniel M Stone, Seattle, vice president, Dr Conrad N Suttner, Walla Walla, secretary, and H R Morse, Wenatchee, treasurer

Combination of Boards Recommended—State Auditor Clausen, in his annual report, recommends that the medical board, pharmacists board, embalming examiners board, dental board optometry board hotel inspectors board and barber examining board be consolidated under the state board of health in order to obtain greater efficiency, and to decrease the cost of operation

WISCONSIN

Group Practice—Six physicians of Marshfield have organized the Marshfield Clinic

Sanatorium for La Crosse—The County Board of Supervisors voted, December 28, to establish a sanatorium for the treatment of tuberculosis, to cost $50 000

Milwaukee Leper—The United States Public Health Service has notified the health authorities in Milwaukee that the government will not be responsible for the care of the Greek leper found in that city

Children's Hospital—The board of directors and the medical staff of the Milwaukee Children's Hospital are considering plans for the new hospital made possible by the gift of $150,000 by Mr Ferdinand Schlesinger, conditioned on the raising of an equal sum for the endowment of the institute

Contagious Diseases—On account of the spread of scarlet fever and diphtheria, the board of health at Stevens Point on December 28 closed all grade and parochial schools, the model school of the State Normal School and all junior Sunday schools Children and young people were warned away from the moving pictures shows, stores and other places of public gathering

New State Laboratory Opened—The second state cooperative laboratory, organized by joint action of the municipality and the state board of health, has been opened in St Mary s Hospital, Fond du Lac in charge of Dr Frederick M Harris La Crosse, as director The state board of health grants state aid of $500 a year to the laboratory, the city defraying the remainder of the director's salary and the expense of housing and upkeep

Personal—Dr John W Coon, Waukesha, has purchased a controlling interest in the River Pines Sanatorium, Stevens Point, and will assume immediate charge ——Dr B L Williams has succeeded Dr Frank Brockway, Oshkosh, as superintendent of the Wisconsin Tuberculosis Sanatorium, Wales ——Dr Jacob Lang was the guest of honor of the Milwaukee Medical Society, December 14, when the semicentenary of his entrance into practice in Milwaukee was celebrated ——Dr William E Buschman, Milwaukee, is said to be seriously ill with cerebral hemorrhage ——Dr John R McDill, Milwaukee, chief surgeon of the American Physicians' Expedition and on duty at Grandez, West Prussia, has been appointed inspector of fortress hospitals ——Dr Paul Withington, Madison, has been appointed coach of the Wisconsin University football team

CANADA

Health Officers to Meet—The Ontario Health Officers' Association will hold its annual meeting in Toronto, May 29 and 30

Personal—Capt E Stanley Ryerson who has been with the University of Toronto Base Hospital at Saloniki, has returned to Toronto on a short leave of absence ——Col James A Roberts of the University of Toronto Base Hospital has arrived in England from Saloniki It is reported that the University Hospital will probably be withdrawn from Saloniki, as many of the men have suffered severely in health ——Dr Walter W Chipman, Montreal has been appointed medical inspector of military hospitals throughout Canada

Hospital News—Canadian soldiers are now being sent home from England for active hospital treatment, and not merely for convalescent hospital treatment, thus necessitating large additional accommodation ——At Montreal eighty beds are being provided in the Royal Victoria Hospital, 300 in the Grey Nunnery, at Ottawa, eighty beds in St Luke's Hospital, at Kingston, 600 in the Queen's University Building, at Winnipeg, 100 in the General Hospital, at Edmonton, 150 in Strathcona Hospital, and at Vancouver, 300 in the General Hospital ——For convalescent Canadian soldiers, the hospital commission has secured the Loyola Building in Montreal, which will accommodate 200 patients, the Rest Haven Building, Vancouver Island, B C, 200, the Spadina at Toronto, 230, and the Ontario Military Hospital at Coburg, for 150 neurasthenic patients ——The Central Prison at Guelph, Ont, is to provide accommodation for 500 returned soldiers ——The Canadian accommodation for military tuberculous patients is now as follows Kingston 175, Hamilton, 175, London, 110, Frank, Alberta, 60, Kitchener Ont, 30, and Sunny View, Kamloops, B C, 20, New buildings are being provided at Kingston, Hamilton and London, Ont ——Surgeon General Kendall of the Gravenhurst Sanatorium has been put in charge of training physical instructors in Toronto so that every convalescent hospital in Canada will have a physical instructor ——A handbook for soldiers suffering from tuberculosis has been issued by the Canadian Military Hospitals Commission It was written by Lieut John R Byers, M D, in charge of the two sanatoriums at Ste Agathe Que *A copy has been sent to every Canadian soldier in Canada* and overseas ——Mr S A Armstrong, deputy provincial secretary for Ontario has been placed in charge of organization and supervision of hospitals under the Canadian Hospitals Commission

GENERAL

Bequests and Donations—The following bequests and donations have recently been announced

Episcopal Hospital Philadelphia $500 Presbyterian Hospital $2 000 and Methodist Hospital $1,000 by the will of Martha L Binder, Philadelphia

Chester Hospital, Viscose Company of Marcus Hook and its employees a contribution of $1 523 65

Homeopathic Hospital, Chester County, a donation of $20 000 from Mr Pierre S DuPont contingent on the raising of an additional $30 000

German Hospital Philadelphia $5 000 by the will of Otto C Wolf

Medical Education in Chicago—The subscription of the $5 300 000 for the development of higher medical education in Chicago, in accordance with the plans announced in The Journal, Nov 18, 1916 is nearing completion The following list shows the contributions so far made for this purpose

General Education Board	$1 000 000
Rockefeller Foundation	1 000 000
Mr and Mrs Julius Rosenwald	500 000
F H Rawson	300 000
Martin Ryerson	250 000
J Ogden Armour	200 000
Billings family for Albert M Billings Memorial Hospital (C K G Billings Albert Billings Ruddock Charles H Ruddock and Dr Frank Billings)	1 000 000
Mrs Gustavus Swift	100 000
Charles Swift	100 000
Dr Norman Bridge	100 000
Three anonymous contributions of $100 000 each and one of $50 000	350 000
Mrs Edward Morris	50 000
A D Thompson, Duluth (James Nevins Hyde Memorial)	25 000
Charles I Grey	20 000
Robert L Scott	5,000

This makes a total of $5 000 000, and leaves $300 000 to be raised The Albert M Billings Hospital will be built on the Midway, and will consist of a $1,000,000 building containing 250 beds which will be utilized for teaching and clinical study It will have an endowment of $3 000 000 The entire teaching force of the undergraduate medical school on the Midway *including the clinical* departments of the Billings Memorial Hospital, will be full time salaried men The F H Rawson gift of $300,000 will be used to erect a laboratory building for the graduate school, on the site of the present Rush Medical College Building In the graduate school, the heads of the departments of medicine, surgery and obstetrics and all the laboratory men will be whole time salaried instructors Promises already made practically complete the $8,000 000 required The organization and administrative details will be worked out later

Martin I Wilbert—An Appreciation—The following has been unanimously adopted by the members of the Council on Pharmacy and Chemistry W A Puckner, Secretary

The death of Martin Inventius Wilbert, a member of the Council on Pharmacy and Chemistry of the American Medical

Association since its organization, removes one of its most able and loyal members He was possessed of an intellectuality and a manhood which commanded the attention and respect of the members of both the medical and the pharmaceutical professions He was fearless, honest and unselfish He was uncompromising in his denunciation of the evils which beset the practice of medicine and pharmacy, but was never ungracious either with his pen or in his speech If after due deliberation he was sure that a definite policy should be promulgated to improve the conditions of these professions he proclaimed his view and conducted a campaign that inevitably received the support and recognition of those best informed He gave a life of service with never a thought of reward and earned every honor which was bestowed on him His knowledge of pharmacy was such that he could have obtained prominence in the manufacturing field and with it would have come a large measure of financial reward But he chose to devote his thoughts and energies to the general good rather than to his own profit His influence on medicine and pharmacy was unique The forcefulness of his personality was equaled only by his modesty and sincerity His greatest work—one which will be cherished as a part of the history of the American Medical Association—was his devotion to the aims and objects of the Council on Pharmacy and Chemistry and his unselfish and indefatigable labors in its behalf

We, the members of the Council on Pharmacy and Chemistry of the American Medical Association, mourn the loss of one of our most useful associates, and one whose life may be held up to the younger generation of pharmacists as an example of unselfishness and devotion to high ideals

FOREIGN

Poliomyelitis in South America—Advices from Montevideo, Uruguay, state that twenty-four cases of infantile paralysis have been reported in that city

Medical Society for Mechanotherapy—At Berlin has been recently founded the Aerztliche Gesellschaft fur Mechanotherapie The board consists of Schutz, Berlin, Hasebroek, Hamburg, Egloff Stuttgart, Hirsch, Salzschlirf, Lubinus, Kiel, and Jacob, Posen

Typhoid at Lisbon—There has been a sudden outbreak of typhoid at Lisbon, 236 patients having been admitted to hospitals in two weeks It is estimated that there were 639 cases throughout the city In the 1912 epidemic there were 1,023 patients admitted to the hospitals in one week In that epidemic the mortality was 9 7 per cent The drinking water is probably responsible for the epidemic

Pasteur Institute at Florence, Italy—The report of the P Grocco Institute for the four years ending with 1915 shows that 1,947 persons applied for treatment and that 1,336 were given the antirabic course The highest number of applicants in any month was in April, with 132, and the lowest in February, with sixty eight Of those given treatment ninety-seven had been bitten by cats, 1,109 by dogs and twenty-three by pigs The total mortality was 0 48 per cent, and since the foundation of the institute, 0 29 per cent The reduced mortality for this entire period has been 0 092 per cent

Prizes Awarded by the Academy of Medicine at Paris—The Academie de Medecine had thirty-seven prizes to distribute at its annual meeting in December but more than one third could not be awarded, as no suitable articles had been received in competition One prize was given to J Glover of Paris for his research on what he calls the *voix solidienne* in contrast to the *voix aérienne* By this he means the vibrations which the different tissues at the moment of the emission of the voice, conduct to the entire surface of the body, even to the hands and feet He has devised means to collect transmit, measure and record these vibrations He includes respiratory and cardiovascular movements as well as vocal vibrations The prize for historical research was awarded to E Wickersheimer, who has been editing the annual reports of the medical department of the University of Paris The faculte de medecine dates from the thirteenth century, its first known records bear the date of 1267 The earliest reports are lost, but from November 1395 to 1786 they have been preserved intact, and form twenty-four folio parchment volumes written by hand in Latin These Wickersheimer has edited and published, down to 1516 in a quarto volume of 561 pages——Another prize went to Maillard for his synthetic production of polypeptids by submitting amino acids to the action of glycerin The *Bulletin* of the Academie, No 49, gives the list and conditions for the numerous prizes open to competition in 1917, 1918 and 1919

PARIS LETTER

Paris, Dec 21, 1916

The War

TRENCH FOOT

The directors of the health service at the main army headquarters have sent to the hospitals a paper by Drs Raymond and Parisot on freezing of the feet, commonly called trench foot It states that this affection is particularly grave among the Indian troops, a number of whom are afflicted not only with serious and extensive local lesions, but also with symptoms of a general septicemia, accompanied by thermal blisters, adynamia, frequent epistaxis, and sometimes by collapse At the outset, this condition may resemble typhoid, subsequently developing into a serious icteric state, pulmonary congestion or nephritis These complications may result fatally, the necropsy in such cases revealing impairment of the liver, spleen, lungs and kidneys, and organic mycosis Inoculation of animals with the bile taken from these patients under aseptic conditions produces the blister and eschar characteristic of trench foot This septicemic condition, as observed in the Indian troops, is also found in Europeans in serious cases Raymond and Parisot have succeeded in overcoming the disease among French soldiers without loss of toes by employing the following treatment

1 The feet are bathed in lukewarm water with ordinary and borated camphor soap, the suds must be mild so as not to irritate the foot The nails should also be manicured, care being taken not to injure the toes

2 A dressing well moistened with borated camphor solution is applied This dressing is made by applying loosely to the foot, taking care to include the nails a layer of absorbent cotton about an inch thick, wrapped in gauze and soaked in a solution of borated camphor Over this is placed an ample covering of adhesive tape, and the entire dressing is stabilized with a band Caution must be used not to bind the foot in any way This dressing should remain moist until the next day, when it is removed It is necessary to renew the dressing daily until the edema has totally disappeared, which usually occurs between the second and fourth day, when the impermeable dressing is discontinued for a day or two Treatment is then limited to daily unctions of camphorated oil until a cure is effected Camphorated alcohol, which is undesirable in such cases, should be avoided

3 If the blisters are no larger than 2 centimeters, they can be left unopened as they heal with the treatment of the edema Larger, or hemorrhagic, blisters should be aseptically excised, the underlying skin removed and the blisters then dressed with compresses saturated with a solution of 30 gm of camphor in 1 000 gm of ether The usual dressing is employed until all traces of edema have disappeared, it is then followed by a camphorated ether dressing

4 In serious cases accompanied by fever, it is advisable to inject camphorated oil hypodermically in doses of from 5 to 10 c c daily

5 As tetanus is to be particularly guarded against, it is well always to give a prophylactic injection to each patient This injection should be repeated every eight days when ulceration develops, the dose being doubled in serious cases (Pasteur serum 20 c c, or American serum, 3,000 units)

6 Finally, it is important to apply the treatment early transporting the patients to the nearest field hospitals where they may receive immediate care Under these conditions the average period of treatment is from twelve to fifteen days

Transportation facilities have just been perfected whereby soldiers suffering with frozen feet may be brought from the front for prompt attention Dr Chavasse general director of the health service of the army in the field in transmitting the paper by Drs Raymond and Parisot emphasizes the great advantage in using the treatment described the splendid results of which as compared with those of other known methods he has been able to appreciate

EFFECT OF CRANIAL WOUNDS ON FITNESS FOR ARMY SERVICE

The fitness for army service of those who have received cranial wounds has been the subject of much discussion At a meeting of the members of the neurologic society of Paris and the representatives of the military neurologic centers (The Journal, July 1 1916 p 47 and July 22 1916 p 297) the problem was discussed and the decisions then made have just been adopted by the undersecretary of state of the military health service It has been decided to exclude from the service those with cranial wounds who are affected with serious organic disorders of the nervous system manifestly incompatible with any kind of military service (such as hemiplegia, monoplegia, difficulty of speech, loss of a large part of the skull, etc) It is also necessary in each case to search carefully for a certain number of other disorders which are of considerable importance from a prognostic point of view, such as chronic cephalalgia, dizziness, vertigo, aural and visual trouble, mental derangements, emotional, sympathetic, circulatory, secretory reactions and finally hyperalbuminosis of the cerebrospinal fluid, etc As to the manner of dealing with those afflicted with any of these disorders, it is difficult and undesirable to establish any arbitrary rule In fact, the peculiarities of each case should be considered separately In general however, no soldier who has received a cranial wound should return to the front except in markedly exceptional cases and after prolonged observation

LONDON LETTER

London, Dec 23, 1916

The War

DISABLED SOLDIERS

The report of a committee of the Royal Colleges of Physicians and Surgeons on the medical treatment of dischargeable disabled soldiers has just been issued It deals only with soldiers not yet discharged from the army The case of soldiers already discharged is now under consideration and will form the subject of a further report The committee has agreed to the following conclusions 1 A considerable proportion of disabled soldiers require continued institutional treatment 2 An essential condition of success is that the patient be throughout under discipline and that no form of discipline can adequately replace military discipline 3 Consequently a disabled soldier should not be discharged from the army until a specially constituted board of medical experts has decided that no further institutional treatment will improve his condition provided such treatment does not extend beyond some general maximum limit to be determined by the military authorities 4 They should be retained in military hospitals until they are fit to be discharged to convalescent camps or other suitable institutions or to return to their own homes 5 On their discharge from military hospitals, such of them as are likely to benefit by institutional treatment should be transferred to annexes to the existing convalescent camps, or to such other camps as may be set up officered by members of the army medical corps to whom civilian help should be supplied 6 In the camps their treatment should be as far as possible, the same as that of soldiers who are expected to return to active duty, except that curative manual treatment including technical and mechanical training should in many cases, take the place of military exercises 7 Several kinds of special boards will be necessary (*a*) For general cases, the board should consist of one physician, one surgeon and a third officer (*b*) for ophthalmic cases, one physician, one ophthalmic surgeon and a third officer, (*c*) for neurasthenic cases and epileptic cases one physician, one neurologist and a third officer, and (*d*) for mental cases, one physician, one alienist and a third officer

A STATE MEDICAL SERVICE

I have stated before that from the insurance act a state medical service in which the physicians would be whole time state officials would probably develop For some time a controversy has been going on in the *Times* and in medical journals on the subject and the war has provided the advocates of a state service with a new argument The attempts to conserve the practices of the large number of physicians (practically every one up to the age of 41) who have joined the army have not been very successful It was arranged that their neighbors would attend their patients for them and retain only a proportion of the fees, but the practices have shown a constant dwindling with the protraction of the war Consequently a fund has been opened to which the profession is invited to subscribe for the purpose of lending money to physicians on their return from the war to buy practices Then in the lay press attention was called to the exceedingly efficient army medical organization for the treatment of all the diseases and injuries of the soldiers, and the question was raised why the state should not organize in civil life an equally efficient system for the civilian population It was pointed out that the physicians who had joined the army were thoroughly trained in this system and would be able to place their experience at the services of the public Moreover, the giving of state appointments would be a far better way of recognizing their patriotism than the suggested loan fund Curiously this further development of socialism has been strongly advocated in the *Times* which, like the rest of the conservative press, at the time of its passage offered the most virulent opposition to the insurance act In these days when the necessity for the state controlling almost all the activities of life is undisputed, the cry of socialism which confronted all social reforms, good or bad, has been silenced On the other hand, what remains of the civilian medical profession is strongly opposed to the proposal, and the British Medical Association has condemned it The association has exposed itself to the taunt of having done so before any details were brought forward The panel physicians are also opposed to the proposal, and their organization is again considering the advisability of forming a trade union so as more effectively to protect their interests in this as well as in other respects

Epidemic of Influenza in London

A widespread epidemic of influenza is prevailing in London It is of a mild type, however, and manifests itself only by slight fever and general aching lasting only a few days and attended by very little or no catarrh of the respiratory mucous membrane In the last four weeks the deaths from the disease have numbered only 17, 41, 55, and 81, respectively

The Fallibility of Dying Declarations

According to the law of this country, the declaration of a person who is dying, and knows the fact, is admitted in the courts as evidence of equal value to that given on oath, and such evidence has often been the means of convicting criminals That it is not always reliable is shown by the following case A woman was dying as the result of an illegal operation for abortion She made three separate 'dying declarations" which were admissible, therefore as evidence They showed minor variations, but substantially agreed in attributing to a physician two unsuccessful attempts to induce abortion followed by a successful and fatal attempt by a woman Fortunately the physician kept his books in good order, and by means of them was able to show that the woman had seen him only once when she gave a false name paid him 4 shillings and received from him a prescription for a tonic According to his evidence she requested him to undertake an illegal operation which he refused He was therefore vindicated Presumably the fear of death was not sufficient to deter the woman from making a false accusation A motive which has been suggested was the desire for revenge because the physician refused her request Another possibility is that she was under some delusion in the matter

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Marriages

John Marshall Page M D, Littleton N H, to Miss Agnes L Greene of Cambridge, Mass, at Alston, Mass, December 24

Robert Garfield Pearson, M D, Sacramento Calif, to Miss Margaret E Crawford of Philadelphia, at Sacramento November 9

Stephen Decatur Harrison, M D, Brooklyn, to Miss Louise Hunter of Cornwall-on-Hudson, N Y, at Brooklyn, December 28

William Barnard Sharp M D, Shanghai China, to Miss Alice Percy of Anaconda, Mont, at Helena, December 22

Charles Chapin Childs M D, Niagara Falls, N Y, to Miss Eva Saunders of Baltimore, December 20

Arnold Noble Allen M D Boston, to Miss Blanche A Greenaway of Roslindale, Mass, December 23

Edward Giles McConnell, M D to Miss Elizabeth M Scott, both of San Francisco, December 26

Orville Jackson Walker M D, Oklahoma City, to Miss Mary Getty of Wilmington, Pa, recently

Thomas Abram Boger, M D, Milwaukee, to Miss Camille Collins of Waukesha, Wis, December 20

W Harman Evans M D, to Miss Agnes Irene McGregor both of Lynchburg, Va, December 24

Elmer Walker Barron, M D, Boston, to Miss Ruth Stanwood Patch of Malden, December 25

Benjamin F Sturgis Jr, M D to Mrs E Janet Sherry both of Salem, Mass, December 25

Lucky Fred Lundy, M D, Seattle, Wash, to Miss Ruby Leedom of Omaha, December 23

Deaths

Hamilton Wright, M D, Washington, D C, McGill University, Montreal 1895, aged 49, died at his home in Washington, D C, January 9 Dr Wright is probably best known as one under whose guiding hand the Harrison Narcotic Law and other federal legislation for the regulation of the sale of habit-forming drugs developed and became laws He had, however, an international reputation even before he entered on that work, having served from 1899 to 1903 as assistant director of the London County (England) laboratories, during which time he was sent by the British government to the Malay states to study beriberi and other tropical diseases While engaged on this mission he founded the Institute for Medical Research in the Federated Malay States and Straits Settlements In 1909 he was appointed by President Roosevelt as one of the United States Commissioners to attend the International Opium Convention in Shanghai Later he was retained by the Department of State to take charge of affairs growing out of that convention, and served as one of the United States delegates to the international opium conferences, held at the Hague in 1911 and 1913 In 1915, Dr Wright went to France to assist in relief work, and while there was seriously injured in a motor accident, from which he never fully recovered His death however, was the result of pneumonia

Tarleton Hoffman Bean, M D, Smithtown Branch N Y George Washington University, Washington, D C, 1876, aged 70, a veteran of the Civil War assistant in charge of the Division of Fish Culture and Curator of the Department of Fishes in the United States National Museum from 1880 to 1895, director of the New York Aquarium from 1895 to 1898 and since 1906 state fish culturist, an honorary member of the Danish Fishery Society, editor of the *Proceedings and Bulletin of the United States National Museum* from 1878 to 1886, president of the American Fisheries Society in 1908 and 1909 a scientist of great renown in his specialty, who had received decorations from France, Germany and Japan, died in Albany, December 28, as the result of injuries sustained in an automobile accident two months before

Samuel Anderson McWilliams, M D, Chicago, Northwestern University Medical School 1866 aged 81, a Fellow of the American Medical Associatioon, formerly lecturer on urinary and renal disorders in his alma mater and later professor of anatomy in the Northwestern University Woman's Medical School, one of the organizers of the College of Physicians and Surgeons Chicago and later one of the founders of the Chicago Hospital College of Medicine, professor of diseases of the chest clinical medicine and physiology in Reliance Medical College, Chicago, a specialist in physical diagnosis, died at his home, January 4, from arteriosclerosis

Charles Henry Rice, M D, Fitchburg Mass, Harvard Medical School 1866, aged 73, formerly a Fellow of the American Medical Association, a member and once vice president of the Massachusetts Medical Society, consulting surgeon to the Burbank Hospital, Fitchburg, formerly major surgeon of the Sixth Infantry, Massachusetts Volunteer Militia and retired in 1897 as lieutenant colonel, first city physician of Fitchburg and first chairman of the board of health, for twenty-five years a member of the board of trustees of the public library and for sixteen years a member of the school board, died at his home, January 5

DeWitt A Paine, M D, Eugene Ore Hospital College of Medicine Louisville Ky, 1887, aged 63, formerly a Fellow of the American Medical Association and president of the Lane County Medical Society, president of the Eugene Loan and Savings Bank and of the United States National Bank, Eugene, consulting surgeon for the Southern Pacific Railroad superintendent of the Oregon Insane Asylum from 1895 to 1901, died suddenly at his home from cerebral hemorrhage December 27

William Wallace Rodman, M D, Pierce City, Mo, College of Physicians and Surgeons, Keokuk Iowa 1875 aged 62, formerly a Fellow of the American Medical Association a member of the Missouri State Medical Association, and Association of Military Surgeons of the United States formerly major surgeon of the Second Infantry, Missouri National Guard died in Kansas City Kan, December 19, from cerebral hemorrhage

Jesse Houck Ramsburgh, M D, Washington D C University of Virginia, Charlottesville, 1895, aged 47, a Fellow of the American Medical Association, a member of the faculty of Georgetown University Medical College, a member of the staff of Georgetown University Hospital, chief of clinic of the Free Dispensary for Consumptives, prominently identified with the tuberculosis movement in the district, died in the Emergency Hospital, Washington, January 2, from cerebral hemorrhage

Edward Boicourt Trovillion, M D, Boulder, Colo, Rush Medical College, 1885, aged 55 a Fellow of the American Medical Association and president of the Boulder County Medical Society in 1912, for several years professor of anatomy in the University of Colorado, health officer of Boulder County for five years, died in the University Hospital, Boulder December 23 from tumor in the head of the pancreas and cirrhosis of the liver

Hulbert H Clark, M D, Santa Cruz, Calif, Medical College of Ohio, Cincinnati 1871 aged 81, formerly a Fellow of the American Medical Association acting assistant surgeon U S Army during the Civil War, formerly local surgeon of the Chicago and Eastern Illinois Railroad, coroner and public administrator of Santa Cruz County from 1894 to 1898 and in 1896 mayor of Santa Cruz, died at his home December 26

Henry H Amos, M D, Charles City Iowa, King Eclectic Medical College, Des Moines, Iowa 1888 aged 58, formerly a Fellow of the American Medical Association and president of the Floyd County Medical Society a specialist on diseases of the eye, ear, nose and throat, local surgeon to the Chicago, Milwaukee and St Paul Railroad died suddenly in a drug store in Charles City, December 19 from heart disease

William E Whitney, M D, Eldora, Iowa, Rush Medical College 1891, aged 61, a Fellow of the American Medical Association surgeon to the Iowa State Industrial School, boys' department, and assistant superintendent of the institution at one time superintendent of the Orphan's Home Davenport and also deputy sheriff of Hardin County died at his home, January 3, from cerebral hemorrhage

Joseph Weatherhead Warren, M D, Harrisburg Pa University of Bonn Germany, 1880, aged 67, assistant to the state commissioner of health demonstrator of anatomy and instructor in Harvard Medical School from 1881 to 1891, and from 1891 to 1913 professor of physiology in Bryn Mawr College, died in Keystone Hospital Harrisburg, December 20 from disease of the kidney

Jean J Dumortier, M D, South Norwalk Conn University of Ghent Belgium 1890, aged 51 a Fellow of the American Medical Association, a member of the staff and president of the Norwalk Hospital once health officer of South Norwalk was found dead at his home December 13 having taken his life by strangulation while of unsound mind on account of ill health

Frank M Galer, M D, Degraff, Ohio, Starling Medical College Columbus, Ohio 1867, aged 73, a member of the Ohio State Medical Association, president of the Citizens Bank Degraff and vice president of the United Telephone Company, a member of the city council and board of education of Degraff died at his home January 1, from kidney disease

Paul Monroe Pilcher, M D, Brooklyn College of Physicians and Surgeons in the City of New York 1900, aged 40 a Fellow of the American Medical Association and a specialist in abdominal surgery, consulting surgeon to the East Long Island Hospital, first editor of the *Long Island Medical Journal* died at his home, January 4 from pneumonia

Peter John Livingstone, M D, Detroit, University of Michigan, 1892, aged 51, a Fellow of the American Medical Association, a member of the American Academy of Ophthalmology and Oto-Laryngology a specialist on diseases of the eye ear nose and throat, died at his home December 28, from cerebral hemorrhage

George W Grabenstatter, M D, Buffalo, University of Buffalo 1900, aged 42, a Fellow of the American Medical Association, for two years acting assistant surgeon, U S Army with service in the Philippine Islands died at the Buffalo General Hospital, January 3, nine days after an operation for appendicitis

Charles Michael McLaughlin, M D, Greencastle Pa Jefferson Medical College 1889, aged 55, a Fellow of the American Medical Association, and once president of the Cumberland Valley Medical Association, a member of the board of health of Greencastle, died at his home, January 6 from chronic endocarditis

Joseph A E Reed, M D, Lancaster, Pa , Pennsylvania Medical College, Gettysburg, Pa , 1854, aged 84, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, a surgeon of volunteers throughout the Civil War, died at his home, January 3

Frederick W Fochtman, M D, Cumberland, Md , College of Physicians and Surgeons, Baltimore, 1889, aged 49, a Fellow of the American Medical Association, a pioneer Roentgen-ray operator of western Maryland, was found dead in his automobile at Ellerslie, January 5, from cerebral hemorrhage

William F Ingram, Kaysville, Utah (license, five years' practice, Utah, 1894), aged 76, formerly a member of the Utah State Medical Association, for more than forty years a practitioner of Davis County, a veteran of the Civil War, died at the home of his son in Bristol, R I, December 7

John Willard Meeker, M D, Brooklyn, New York University New York 1863, aged 82, for forty years a druggist of Williamsburg, and for a time a surgeon in the army, a charter member of the New Jersey Microscopical Society, died at his home, January 1, from pneumonia

John L Hoshall, M D, Oklahoma City, College of Physicians and Surgeons, Baltimore, 1899, aged 43, a member of the Oklahoma State Medical Association, was accidentally killed, January 4, by a collision between the automobile in which he was riding and another car

Roy Gavin Fisher, M D, Tucson, Ariz , Dearborn Medical College, Chicago, 1907, College of Physicians and Surgeons, Chicago, 1909, aged 33, formerly professor of ophthalmology in the Chicago Eye, Ear, Nose and Throat College, died at a hospital in Tucson, December 26

Harry Blair Warriner, M D, Philadelphia, Maryland Medical College, Baltimore, 1912, Hahnemann Medical College, Philadelphia, 1914, aged 28, chief resident physician at the Children's Homeopathic Hospital, died in that institution, January 4, from pneumonia

George Everett Titus, M D, Hightstown, N J , Bellevue Hospital Medical College, 1877, aged 61, a Fellow of the American Medical Association, at one time a member of the common council of Hightstown, died at his home, January 4, from cerebral hemorrhage

George Clary, M D, New Britain, Conn , Yale University New Haven, Conn , 1857, aged 87, a member of the Connecticut State Medical Society, surgeon of the Thirteenth Connecticut Volunteer Infantry during the Civil War, died at his home, December 30

Elias L Kinyon, M D, Brighton, Colo , Eclectic Medical Institute, Cincinnati, 1899, aged 52, died at his home, January 4, from the effects of a gunshot wound of the head, self-inflicted, it is believed with suicidal intent, while despondent on account of ill health

Ernest Samuel Feagin, M D, Mobile, Ala , University of Alabama Mobile, 1905 aged 35, a member of the Medical Association of the State of Alabama, for five years house physician of the City Hospital, Mobile, died suddenly at his home, December 30

Albert Weeks, M D, Phoenixville, Pa , Jefferson Medical College, 1880, aged 58, formerly a Fellow of the American Medical Association, one of the organizers of the Stratford Castle Hospital Phoenixville, died at his home, December 27, from erysipelas

Edmund T Spotswood, M D, Terre Haute, Ind , Rush Medical College 1851, aged 90, surgeon of the Seventy-First Indiana Volunteer Infantry during the Civil War, a member of the legislature in 1858, died at his home, January 5, from senile debility

Alphonse Louis Eakin, M D, Philadelphia, University of Pennsylvania, Philadelphia, 1863, aged 77, died at his home, January 2, after an invalidism of several years, due to a wound received while serving as a medical officer in the Civil War

John S Sellers, M D, Hartford City, Ind , Medical College of Indiana, Indianapolis, 1888, aged 72, formerly a Fellow of the American Medical Association and a member of the Indiana State Medical Association, died at his home, January 3

Carl Shadiker Adams, M D, Colorado Springs, Colo , Harvard Medical School, Boston, 1902, aged 42, a specialist on dermatology, a member of the Colorado State Medical Society, died at his home, about January 1, from tuberculosis

William Clarence Kluttz, M D, El Paso, Texas, University of Pennsylvania, Philadelphia, 1899, aged 40, a Fellow of the American Medical Association, and a member of the American Association of Railway Surgeons, died, January 4

Erich A Hermsmeier, M D, Milwaukee, College of Physicians and Surgeons, Memphis, Tenn , 1911, aged 28, a Fellow of the American Medical Association, died at his home, December 28, from pneumonia complicating influenza

Kenton Harper Trimble, M D, Monterey, Va , University of Virginia, Charlottesville, 1884, Bellevue Hospital Medical College, 1885, aged 57, a member of the Medical Society of Virginia, died at his home, December 22

John T Fugate, M D, Urbana, Ill , Missouri Medical College, St Louis, 1859, aged 86, one of the oldest practitioners of central Illinois, died at the home of his daughter in Urbana, December 25, from senile debility

Richard Edward Sweeney, M D, New York, Niagara University, Buffalo, 1898, aged 39, died in the Gouverneur Hospital, New York, December 25, from burns sustained by the accidental upsetting of an oil stove

Charles Cleveland Frederick, M D, Lizella, Ga , Medical College of Georgia, Augusta 1912, aged 29, a member of the Medical Association of Georgia, died at the home of his sister in Macon, about December 21

James Bingham, M D, Washington, Pa , Western Reserve University, Cleveland, 1868, aged 84, for forty-two years a practitioner of Clinton, Pa , died at the home of his daughter in Washington, Pa , December 25

Benjamin Franklin Hopkins, M D, Hot Springs, Va , Jefferson Medical College, 1855, aged 88, a member of the Medical Society of Virginia, died at the home of his daughter in Staunton, Va , December 26

Erastus H Cummings, M D, Grand Rapids, Mich , Hahnemann Medical College, Chicago, 1877, aged 81, a veteran of the Civil War, in which he served as a hospital steward, died at his home, December 20

Charles Edwin Stone, M D, Lynn, Mass , University of Vermont, Burlington 1906, aged 48, a member of the Massachusetts Medical Society, died in the Lynn Hospital, November 5, from chronic nephritis

Sarah Abbie Jenness, M D, Wolfeboro, N H , Boston University, 1889, aged 70, for many years a practitioner of Boston, was burned to death in a fire which destroyed her home December 26

Wilson L Kutz, M D, Weissport Pa , Jefferson Medical College, 1878, aged 62, a Fellow of the American Medical Association, died at his home, December 23, from malignant disease

Ellera J Whittleton, M D, Webster N Y , Homeopathic Hospital College, Cleveland 1884, aged 57, died at his home, November 20 from cerebral hemorrhage

Francis Lamb Howland, M D, Huntsville, Ont , McGill University, Montreal, 1867, aged 74, died at his home, November 8 from chronic nephritis

Russell Henry Nevins, M D, Waterford, Conn , College of Physicians and Surgeons in the City of New York, 1876, died in New York, December 21

James Kiron Dorsey, M D, Wichita, Kan , New York University, New York, 1892, aged 46, died at his home, December 24, from pneumonia

James Harry Ralston, M D, Kansas City, Mo , Medico-Chirurgical College of Kansas City, 1904, aged 45, died at his home, about December 29

Richard Edward Cavanaugh, M D, Duluth, Minn , Rush Medical College, 1894, aged 48, died at his home, December 24, from heart disease

William Ferdinand Radue, M D, Union Hill, N J , New York University, New York, 1888, aged 55, died at his home, December 26

Charles E Caldwell, M D, Chicago, Rush Medical College, 1877, aged 65, died at his home, January 5, from pneumonia

Sarah J Millsop, M D, San Diego, Calif , Hahnemann Medical College, Chicago, 1886, died at her home November 2

John Becker, M D, Chicago, Rush Medical College, 1865, aged 87, died at his home, December 29, from tuberculosis

Edwin Mayo Bangs, M D, Ithaca, N Y , Boston University School of Medicine, 1878, died at his home, December 24

Alexander Gaertner, M D, Boston, University of Jurjev, Russia, 1889, aged 56, died at his home, December 30

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ASPIRIN

Report of the Council on Pharmacy and Chemistry

The referee's report on Aspirin-Bayer which follows was submitted to the Council and adopted by it and, in accordance with the referee's recommendation, was sent to the Bayer Company Inc The company's reply contained nothing to warrant the continued recognition of this product by the Council It was accordingly directed that Aspirin-Bayer be omitted from New and Nonofficial Remedies

W A Puckner, Secretary

REFEREE'S REPORT

The referee's attention has been called to the systematic campaign of advertising aspirin to the public He is informed that tablets have been marketed for some time in 'vest-pocket' boxes bearing the name 'Aspirin' permanently affixed, which is in technical conflict with the Council's rule against indirect advertising to the public More recently conspicuous advertisements have appeared in daily papers These are technically in conflict with the rule against direct advertising to the public

In addition to the plain technical conflicts with the Council's rules there is a feature of the case which has not hitherto been raised and which should be fully considered It may be remarked that the advertisements contain no therapeutic recommendation, and do not, on their face urge the public to employ aspirin but apparently merely tell the public how it may protect itself against sophistication In substance, they say If you are a user of aspirin, this is how you may obtain the genuine" It might be said that this is not an attempt to increase the use or sale of aspirin—the ordinary object of advertising—but that the means of protection against adulteration is a 'subject on which the public should be instructed' The principle of such exceptions is stated in the comments to Rule 3 (New and Nonofficial Remedies, 1916 p 15), and although the present case does not come under the exceptions specified under these comments it may be urged that the exceptions need to be increased as occasion arises The notorious adulteration of aspirin may well be urged as establishing a need for a similar exception in its use

The general principle of protecting the public against fraud, adulteration and substitution is directly in line with the objects of the Council, and deserves commendation and support It is obvious however, that the means adopted for this end must be efficient, that they must not open the door to other, perhaps greater evils and that they must be used in good faith The policy of advertising Aspirin-Bayer must be examined in these respects

In the first place the acceptance of a product by the Council implies an agreement by the manufacturers or agents that they will adhere strictly to the Council's rules and will not depart from the letter or spirit of these rules without notice to the Council This principle has been grossly infringed in the present case There can be no doubt that the agents were aware that their advertisements conflicted at least with the letter of Rule 3 Nevertheless, they did not, in any way, inform the Council of the change in policy In this respect, at least, they have not acted in good faith

Secondly, the wording of the advertisement implies that only the tablets stamped with The Bayer Cross" are genuine. This is misleading since every druggist has the right to make unstamped tablets of aspirin, fully as genuine as those stamped with the cross

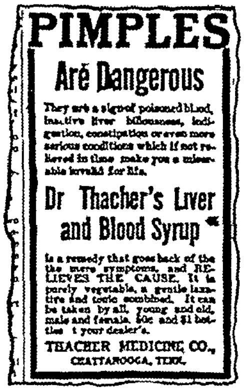
Thirdly, the cross itself cannot be considered an efficient protection, for people who imitate aspirin will not hesitate to imitate the stamp The remedy, in either case, and as with any other drug, is the examination of trade samples and the vigorous prosecution of those guilty of violating the law

Fourthly, the permanent affixing of the name "Aspirin' to the vest-pocket boxes is also inefficient as a protection, and serves mainly as an advertisement

Fifthly, whatever may have been the motives of the advertisers and however carefully the advertisements are worded they will inevitably tend to increase the use of aspirin by the public, and this is directly against the interests of public health The public does not know as physicians do, that headaches are merely symptoms of other, sometimes very serious conditions, and that they are often the signal for the need of a thorough physical examination and diagnosis It is true that they are often also the symptoms of very minor derangements, which will right themselves spontaneously and that, in such cases drugs like aspirin may give relief and may do no harm The patient however, is not educated to distinguish one class from the other and therefore anything that tends to promote the indiscriminate use of such remedies as aspirin is detrimental to the public health Furthermore, aspirin itself is not always harmless Alarming idiosyncrasies are sufficiently common that the use of the first doses at least, should require medical supervision With these considerations in mind, the referee is of the opinion that the direct and indirect advertising of aspirin is to be condemned

MORE MISBRANDED NOSTRUMS

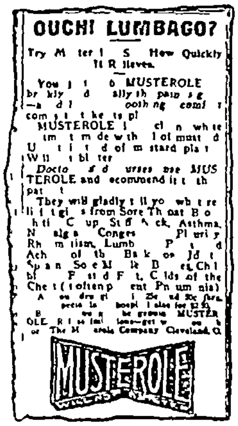
Dr Thacher's Liver and Blood Syrup—This preparation, which admittedly contained 12½ per cent alcohol was sold by the Thacher Medicine Company Chattanooga, Tenn The claims made by the company that the stuff contained no aloes but contained potassium iodid and sarsaparilla combined with May apple, gentian juniper berries buchu leaves dandelion root and yellow dock root were declared by the government to be false and misleading It was further claimed by the company that Thacher's Liver and Blood Syrup would cure All Liver Complaints Biliousness Costiveness Drowsiness Yellow Jaundice And All Liver Complaints Impure or Bad Blood including Scrofula, Salt Rheum Erysipelas, Pimples and all Diseases of A Syphilitic Character, Also Loss of Appetite Dyspepsia Sour Stomach Sleeplessness Pains in Back and Sides Sick Headache " Naturally the government declared these claims misleading false and fraudulent As no claimant appeared for the property the court ordered that it should be destroyed by the United States marshal—[*Notice of Judgment No 4351*]



PIMPLES
Are Dangerous
They are a sign of poisoned blood, inactive liver biliousness, indigestion, constipation or even more serious conditions which if not relieved in time make you a miserable invalid for life.
Dr Thacher's Liver and Blood Syrup
Is a remedy that goes back of the the mere symptoms, and RELIEVES THE CAUSE. It is purely vegetable, a gentle laxative and tonic combined. It can be taken by all, young and old, male and female. 50c and $1 bottles at your dealer's.
THACHER MEDICINE CO.,
CHATTANOOGA, TENN.

Black's Pulmonic Syrup—W F Black and W H Martin who did business under the name Black Distributing Agency, Nashville Tenn put on the market Black's Pulmonic Syrup" which was alleged to contain 20 per cent alcohol and to be Compounded by W F Black M D Birmingham Alabama It was sold as The New Remedy for Tuberculosis and Bronchitis Government chemists reported that it was a water-alcohol solution of ichthyol glycerin and sugar Government officials declared naturally, that the claim that this stuff was an effective remedy for tuberculosis was false and fraudulent and applied knowingly recklessly and wantonly Both defendants pleaded guilty and Black was fined $200, Martin $100 and the costs assessed on both—[*Notice of Judgment No 4357*]

Walker's Pain Destroyer—This stuff was made and sold by Sarah Ann McDonald who conducted her nostrum business under the name of Walker Medicine Co, St Paul Minn It was sold as a sure cure for Diphtheria and all Throat Diseases Summer Complaint, Felons, Chilblains Frost Bites Neuralgia and is remarkable in Rheumatism The government chemists reported that analysis "showed that the product was an alcoholic solution of oil of mustard, chloroform, opium and collodion" The therapeutic claims were declared by the government to be false and fraudulent and made knowingly and in reckless and wanton disregard of their truth or falsity The further claim made for the stuff that it was "invaluable in the household and nursery and no danger whatever can ensue from an overdose, as there are no poisonous ingredients in the compound" was declared false and misleading in view of the fact that the stuff contained chloroform and opium The defendant pleaded guilty and was fined $5—[*Notice of Judgment No 4353*]


OUCH! LUMBAGO?
MUSTEROLE
MUSTEROLE
MUSTEROLE

Musterole—This product, marketed by the Musterole Co, Cleveland, Ohio, was analyzed by the government chemists who reported that it was essentially a mixture of lard or some similar material with oil of mustard, menthol and camphor Claims made for the preparation were to the effect that it would cure pneumonia, asthma, bronchitis, croup, rheumatism and pleurisy and would prevent pneumonia These claims were declared false and fraudulent and applied knowingly, recklessly and wantonly The company would neither affirm nor deny the charge but was found guilty and fined $25 and costs—[*Notice of Judgment No 4358*]

Snyder's Bitters—The J H Snyder Medicine Co, Jonesboro, Ark, sold Snyder's Bitters under the claims that it contained 20 per cent alcohol, and would eradicate "Scrofula, Scrofulous Humors, Syphilitic Affections, Cancerous Humors, Ringworms, Salt Rheum Catarrh and all diseases arising from an impure state or low condition of the blood" It was also said to be an "Unfailing Relief for Indigestion and all Diseases of the Liver and Kidneys" as well as a cure for malaria, to say nothing of being "an absolute panacea for all diseases and disorders of the female genital organs" These claims were declared false and fraudulent and applied knowingly, recklessly and wantonly The company pleaded guilty and was fined $10 and costs—[*Notice of Judgment No 4359*]

5 Drops—"5 Drops" was put on the market by the Swanson Rheumatic Cure Co, Chicago, Ill It was sold as a remedy for rheumatism, sciatica, asthma, hay fever, croup, la grippe, catarrh and malaria, as a preventive of germ diseases and as a cure for blood diseases, eczema scrofula and gastric ulcer as well as a preventive of gallstones The government chemists reported that analysis showed the stuff to consist of "a mixture of eucalyptol (or a eucalyptol-containing oil), camphor, safrol, terpineol and eugenol (or an oil containing those ingredients, such as camphor oil)" The government declared the curative claims to be false and fraudulent and applied knowingly, recklessly and wantonly The company pleaded guilty and was fined $200 and costs—[*Notice of Judgment No 4372*]

RHEUMATIC SUFFERERS SHOULD USE
"5-DROPS"
The Best Remedy For all forms of
Rheumatism
LUMBAGO
SCIATICA, GOUT, NEURALGIA AND KIDNEY TROUBLES
5 DROPS
STOP THE PAIN
Gives Quick Relief
SOLD AT ALL DRUGGISTS
Swanson Rheumatic Cure Co
CHICAGO

Dr Stuart's Specific Drops—Joseph W and Anna B House sold "Dr Stuart's Specific Drops" under the name Stuart Remedy Co, Detroit, Mich Claims made for the nostrum were that it was a cure for rheumatism and a positive specific for eczema and salt rheum and would drive all impurities out of the blood The government chemists reported that the preparation was essentially a mixture of camphor, alcohol, mercuric iodid and turpentine The curative claims were declared false and fraudulent and applied knowingly, recklessly and wantonly The defendants pleaded guilty and were fined $50—[*Notice of Judgment No 4368*]

Correspondence

Secret Remedies and Professional Responsibility

To the Editor—A man of great wealth and of social and business prominence in this community recently returned from an eastern visit during which he had occasion to consult a physician The physician, be it remarked, is a prominent educator, being dean of one of the most important medical schools of the country, a man of nation wide reputation, and of undoubted skill and ability as a practitioner of medicine He is also well known in the American Medical Association, of which he has long been a prominent and important Fellow, and is a vigorous enemy of secret remedies and a strong supporter of the Council on Pharmacy and Chemistry The above mentioned gentleman brought home with him a new and marvelous remedy which his physician had prescribed for him and which in an incredibly short time had cured his influenza and which, as grip was quite epidemic at home among his friends, he immediately recommended to several of them There is no greater joy to the average nonmedical person than to be able to advise a new remedy for one's friends' ailments, especially one so highly recommended, and as a result there was an immediate and large demand for this preparation, greatly to the profit of the local drug stores as well as of the manufacturer The remedy, a secret proprietary which has not been accepted by the Council and cannot be advertised in The Journal, is a preparation which has long been on the market, is freely sampled to physicians in an attractive container and accompanied by the usual extravagant claims to cure many of the common diseases, and is recommended both for internal and external use This incident is related to show how sometimes our most ethical brethren help to boost the secret remedy

Burnside Foster, M D, St Paul

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request

HEMATOXYLIN STAIN—DIAGNOSTIC VALUE OF VON PIRQUET REACTION

To the Editor—In the April, 1916 issue of the *Comptes rendus des séances et mémoires de la Société de biologie*, Paris Triboneau Fichet and Dubriel describe a new hematoxylin stain—silver hematemate The abstract I have gives no details as to its preparation

1 Please publish the detailed method of preparing this stain

2 Please give briefly the exact diagnostic value of the von Pirquet test

Robert Kilduffe M D Chester, Pa

Answer—1 (*a*) Preparation of Silver Oxid In a carefully cleaned stoppered bottle dissolve 1 gm of silver nitrate in 100 c c cold distilled water Add to this quickly 50 c c of a 10 per cent aqueous solution of pure potassium hydroxid Shake well Let stand for one minute, decant from the heavy precipitate of silver oxid Wash this by decantation with four lots of 150 c c of distilled water, each (*b*) Preparation of Silver Hematemate Dissolve 2 5 gm of French hematoxylin in 50 c c of absolute alcohol Pour this on the silver oxid Place the mixture in a long-necked flask, and heat on the water bath with occasional shaking until the alcohol boils The liquid should be of a deep orange color Filter (*c*) Preparation of Silver Hemalum Staining Solution To one part of the silver hematemate solution add twenty parts of a 5 per cent solution of potassium alum

2 It is not possible within the limits of a short answer to discuss satisfactorily the diagnostic value of von Pirquet's reaction The following is a partial list of the literature on the subject published within the last two years

Brown E M Diagnostic Value of Cutaneous Tuberculin Test in Recruiting *U S Naval Med Bull* July 1914

Kinghorn H M Comparative Value of von Pirquet and Subcutaneous Tuberculin Tests in Diagnosis of Tuberculosis in Adult abstr, The Journal July 25, 1914 p 349

Frehn W Sensitization Index with Tuberculin Skin Reaction, *Beitr z Klin d Tuberk* July 30 1914 abstr The Journal Jan 2 1915 p 90

Rogers O F, Jr Study of Children with Positive Skin Tuberculin Reactions *Boston Med and Surg Jour* Feb 4 1915 abstr, The Journal Feb 20 1916 p 695

Cattermole G H Tuberculin Tests in Children of Colorado The Journal Aug 28 1915 p 782

Von Litzner M Detection of Focal Reaction after Tuberculin Test *München. med Wchnschr* Aug 10 1916 abstr The Journal Sept 25, 1915 p 1148

Clovis E E Use of Tuberculin Reaction in Diagnosis of Pulmonary Tuberculosis *West Virginia Med Jour* February 1916

Shelter, H Intradermal Tuberculin Reaction in Diagnosis of Tuberculosis in Guinea Pigs *Deutsch med Wchnschr* Jan 20 1916 abstr The Journal March 11 1916 p 845

Zitronblatt, A Y Skin Tuberculin Test in Surgical Practice, *Russk Vrach* 1915, **14**, No 30 abstr The Journal March 11, 1916 p 850

REMOVAL OF BURNT POWDER FROM THE SKIN

To the Editor—Please give me the best treatment for removing burnt powder from the skin, the result of a pistol shot

W H Smith M D Goldsboro, N C

Answer—A reply to this question appeared in Queries and Minor Notes, The Journal, Nov 14 1908, p 1716 In brief, it was stated that if the patient is seen shortly after the accident, the gunpowder grains can be picked out readily Much of the powder can be removed by the same process later on, although this is tedious and difficult Watson and Keyes advocated the use of a cutaneous punch or trephine similar to that used for removing comedones The punch is placed over the powder mark and pressed down firmly Care should be taken not to enter the skin too deeply The small portion of skin which projects from the trephine can be snipped off and a soothing ointment applied Hydrogen peroxid is sometimes used, either full strength or three parts to one of glycerin Crile applies hydrogen peroxid until it has penetrated under the powder grains, the effervescence forcing them out of their bed

In case the powder marks are old, they may be removed in the same manner as tattoo marks Methods of doing this are described by W A Pusey, "Principles and Practice of Dermatology," in the chapter on 'Tattoo Marks and Powder Stains," p 814 and also in Queries and Minor Notes, The Journal, July 22 1911, p 310, Sept. 12, 1912, p 895, and Jan 24, 1914, p 315

TREATMENT OF SEBORRHEA OF SCALP

To the Editor—In my books on skin diseases I find no lotions for seborrhea of the scalp except those containing resorcin This is so scarce and high priced that I cannot use it Could you give one or more formulas containing drugs that may be substituted for resorcin?

George G Smith M D Chagrin Falls Ohio

Answer.—A good lotion for seborrhea of the scalp is the following

	gm or c c		
Mercuric chlorid		5	gr vii
Chloral hydrate	15		℥ ss
Perfumed spirit N F	30		℥ i
Water sufficient to make	500		O i

This can be used on the scalp and hair daily or every other day It is fully as effective as the resorcin solution, and much more agreeable to use In conjunction with such a lotion, either in case of oily hair or of dandruff, it is well to use on the scalp occasionally an ointment like the following

	gm or c c	
Salicylic acid	1 to 2	gr xx to xxx
Benzoic acid	3 to 4	gr xl to lx
Precipitated sulphur	3 to 4	gr xl to lx
Petrolatum	30	℥ i

This is applied occasionally—once in four or five days to once in eight or ten days—and is followed by shampoo in from thirty-six to forty-eight hours

REQUIREMENTS TO PRACTICE IN THE HAWAIIAN ISLANDS

To the Editor—Please inform me as to the requirements for license to practice in the Hawaiian Islands

Jois Morita Baltimore

Answer—To obtain a license in Hawaii the applicant must be a graduate of a reputable medical college having not less than four years of study, and must pass an examination in all the branches of the medical curriculum There is no reciprocity Examinations are held by appointment between the board and candidates The examination fee is $10 Address Dr W L Moore secretary, Board of Medical Examiners Boston Building Honolulu

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Illinois Chicago Jan 24 26 Sec Dr C St Clair Drake Capitol Bldg, Springfield

Iowa Des Moines Feb 6 8 Sec Dr G H Sumner Capitol Bldg, Des Moines

Kansas Topeka Feb 13 Sec Dr H A Dykes Lebanon

New York New York City Albany Syracuse and Buffalo Jan 29 Feb 2 Chief Examinations Division H H Horner University of the State of New York Albany N Y

Vermont Montpelier, Feb 13 Sec Dr W Scott Nay Underhill

District of Columbia October Report

Dr Edgar P Copeland, secretary of the Board of Medical Supervisors of the District of Columbia reports the oral and written examination held at Washington, Oct 10-12, 1916 The total number of subjects examined in was 16, total number of questions asked, 80, percentage required to pass, 75 The total number of candidates examined was 15, of whom 10 passed and 5 failed Three candidates were licensed through reciprocity The following colleges were represented

College	PASSED	Year Grad	Per Cent
George Washington University	(1916) 77 79 1 79 4	79 4	80 1 86 4 86 6
University of Maryland		(1915)	78 6, 87
Temple University		(1915)	79 2
	FAILED		
George Washington University		(1916)	71 4
Howard University		(1911)	66
College of Phys and Surgs Boston		(1916)	68
Temple University		(1915)	74
Meharry Medical College		(1916)	71 2

College	LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Georgetown University		(1908)	Maryland
Johns Hopkins University		(1911)	Penna
Barnes Medical College		(1903)	W Virginia

Colorado October Report

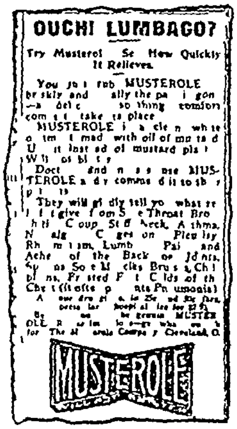
Dr David A Strickler, secretary of the Colorado State Board of Medical Examiners reports the written examination held at Denver, Oct 3, 1916 The total number of subjects examined in was 8, total number of questions asked 80 percentage required to pass, 75 The total number of candidates examined was 12, of whom 8 passed, including 1 osteopath, and four failed, including 1 osteopath Eighteen candidates were licensed through reciprocity, and one osteopath was granted a reregistration certificate The following colleges were represented

College	PASSED	Year Grad	Per Cent
University of Colorado		(1911)	88 3
Chicago College of Medicine and Surgery		(1916)	82 5
Northwestern University		(1916)	87 4
Rush Medical College	(1915) 83 6	(1916)	85 4
Jefferson Medical College of Philadelphia		(1914)	84 3
University of Pennsylvania		(1915)	81 5
	FAILED		
St Louis College of Physicians and Surgeons		(1915)	63 7
John A Creighton Medical College		(1907)	71 7
Lincoln Medical College		(1916)	67 9

College	LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Hering Medical College		(1904)	Illinois
College of Physicians and Surgeons Chicago		(1901)	Iowa
Baltimore Medical College		(1906)	Georgia
Homeopathic Medical College of Missouri		(1895)	Missouri
University Medical College of Kansas City		(1908)	Kansas
Washington University	(1906)	(1907)	Illinois
John A Creighton Medical College		(1905)	Nebraska
Bellevue Hospital Medical College		(1875)	New York
New York Homeo Med Coll and Flower Hospital		(1910)	New Yokr
University of Buffalo		(1915)	New York
Miami Medical College		(1894)	Minnesota
Medico Chirurgical College of Philadelphia		(1902)	Penna
University of Pennsylvania		(1912)	Penna
Western Pennsylvania Medical College		(1895)	Penna
University of Tennessee		(1915)	Tennessee
Vanderbilt University (1908) Alabama		(1913)	Tennessee

Idaho October Report

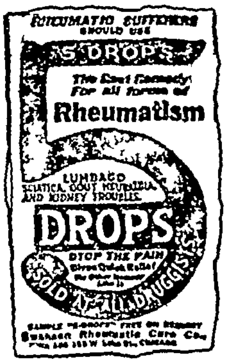
Dr Charles A Dettman, secretary of the Idaho State Board of Medical Examiners, reports the written examination held ment chemists reported that analysis "showed that the product was an alcoholic solution of oil of mustard, chloroform, opium and collodion" The therapeutic claims were declared by the government to be false and fraudulent and made knowingly and in reckless and wanton disregard of their truth or falsity The further claim made for the stuff that it was "invaluable in the household and nursery and no danger whatever can ensue from an overdose, as there are no poisonous ingredients in the compound" was declared false and misleading in view of the fact that the stuff contained chloroform and opium The defendant pleaded guilty and was fined $5—[*Notice of Judgment No 4353*]


OUCH! LUMBAGO?
Try Musterol Se How Quickly It Relieves
MUSTEROLE

Musterole—This product, marketed by the Musterole Co, Cleveland, Ohio, was analyzed by the government chemists who reported that it was essentially a mixture of lard or some similar material with oil of mustard, menthol and camphor Claims made for the preparation were to the effect that it would cure *pneumonia, asthma, bronchitis, croup,* rheumatism and pleurisy and would prevent pneumonia These claims were declared false and fraudulent and applied knowingly, recklessly and wantonly The company would neither affirm nor deny the charge but was found guilty and fined $25 and costs—[*Notice of Judgment No 4358*]

Snyder's Bitters—The J H Snyder Medicine Co, Jonesboro, Ark, sold Snyder's Bitters under the claims that it contained 20 per cent alcohol, and would eradicate "Scrofula, Scrofulous Humors, Syphilitic Affections, Cancerous Humors, Ringworms Salt Rheum Catarrh and all diseases arising from an impure state or low condition of the blood" It was also said to be an "Unfailing Relief for Indigestion and all Diseases of the Liver and Kidneys" as well as a cure for malaria, to say nothing of being "an absolute panacea for all diseases and disorders of the female genital organs" These claims were declared false and fraudulent and applied knowingly, recklessly and wantonly The company pleaded guilty and was fined $10 and costs—[*Notice of Judgment No 4359*]

5 Drops—"5 Drops" was put on the market by the Swanson Rheumatic Cure Co, Chicago, Ill It was sold as a remedy for rheumatism, sciatica, asthma, hay fever, croup, la grippe, catarrh and malaria, as a preventive of germ diseases and as a cure for blood diseases, eczema scrofula and gastric ulcer as well as a preventive of *gallstones* The government chemists reported that analysis showed the stuff to consist of "a mixture of eucalyptol (or a eucalyptol-containing oil), camphor, safrol terpineol and eugenol (or an oil containing those ingredients, such as camphor oil)" The government declared the curative claims to be false and fraudulent and applied knowingly, recklessly and wantonly The company pleaded guilty and was fined $200 and costs—[*Notice of Judgment No 4372*]


RHEUMATIC SUFFERERS SHOULD USE
5 DROPS
The Best Remedy For all forms of
Rheumatism
LUMBAGO SCIATICA, GOUT, NEURALGIA AND KIDNEY TROUBLES
DROPS
STOP THE PAIN
SOLD AT ALL DRUGGISTS
Swanson Rheumatic Cure Co.

Dr Stuart's Specific Drops—Joseph W and Anna B House sold "Dr Stuart's Specific Drops" under the name Stuart Remedy Co, Detroit, Mich Claims made for the nostrum were that it was a cure for rheumatism and a positive specific for eczema and salt rheum and would drive all impurities out of the blood The government chemists reported that the preparation was essentially a mixture of camphor, alcohol, mercuric iodid and turpentine The curative claims were *declared false and fraudulent and* applied knowingly, recklessly and wantonly The defendants pleaded guilty and were fined $50—[*Notice of Judgment No 4368*]

Correspondence

Secret Remedies and Professional Responsibility

To the Editor—A man of great wealth and of social and business prominence in this community recently returned from an eastern visit during which he had occasion to consult a physician The physician, be it remarked, is a prominent educator, being dean of one of the most important medical schools of the country, a man of nation wide reputation, and of undoubted skill and ability as a practitioner of medicine He is also well known in the American Medical Association, of which he has long been a prominent and important Fellow, and is a vigorous enemy of secret remedies and a strong supporter of the Council on Pharmacy and Chemistry The above mentioned gentleman brought home with him a new and marvelous remedy which his physician had prescribed for him and which in an incredibly short time had cured his influenza and which, as grip was quite epidemic at home among his friends, he immediately recommended to several of them There is no greater joy to the average nonmedical person than to be able to advise a new remedy for one's friends' ailments, especially one so highly recommended, and as a result there was an immediate and large demand for this preparation, greatly to the profit of the local drug stores as well as of the manufacturer The remedy, a secret proprietary which has not been accepted by the Council and cannot be advertised in The Journal, is a preparation which has long been on the market is freely sampled to physicians in an attractive container and accompanied by the usual extravagant claims to cure many of the common diseases, and is recommended both for internal and external use This incident is related to show how sometimes our most ethical brethren help to boost the secret remedy

Burnside Foster, M D, St Paul

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted on request

HEMATOXYLIN STAIN—DIAGNOSTIC VALUE OF VON PIRQUET REACTION

To the Editor—In the April, 1916 issue of the *Comptes rendus des séances et mémoires de la Société de biologie* Paris Triboneau Fichet and Dubriel describe a new hematoxylin stain—silver hemateinate The abstract I have gives no details as to its preparation

1 Please publish the detailed method *of preparing this stain*

2 Please give briefly the exact diagnostic value of the von Pirquet test

Robert Kilduffe, M D Chester, Pa

Answer—1 (*a*) Preparation of Silver Oxid In a carefully cleaned stoppered bottle dissolve 1 gm of silver nitrate in 100 c c cold distilled water Add to this quickly 50 c c of a 10 per cent aqueous solution of pure potassium hydroxid Shake well Let stand for one minute, decant from the heavy precipitate of silver oxid Wash this by decantation with four lots of 150 c c of distilled water, each (*b*) Preparation of Silver Hemateinate Dissolve 2 5 gm of French hematoxylin in 50 c c of absolute alcohol Pour this on the silver oxid Place the mixture in a long-necked flask and heat on the water bath *with occasional shaking* until the alcohol boils The liquid should be of a deep orange color Filter (*c*) Preparation of Silver Hemalum Staining Solution To one part of the silver hemateinate solution add twenty parts of a 5 per cent solution of potassium alum

2 It is not possible within the limits of a short answer to discuss satisfactorily the diagnostic value of von Pirquet's reaction The following is a partial list of the literature on the subject *published within the last two years*

Brown E M Diagnostic Value of Cutaneous Tuberculin Test in Recruiting *U S Naval Med Bull* July, 1914

Kinghorn H M Comparative Value of von Pirquet and Subcutaneous Tuberculin Tests in Diagnosis of Tuberculosis in Adult abstr The Journal, July 25 1914, p 349

Frehn W Sensitization Index with Tuberculin Skin Reaction, *Beitr z Klin d Tuberk* July 30 1914 abstr The Journal Jan 2 1915, p 90

Rogers O F, Jr Study of Children with Positive Skin Tuberculin Reactions *Boston Med and Surg Jour* Feb 4 1915, abstr, The Journal Feb 20 1916, p 695

Cattermole G H Tuberculin Tests in Children of Colorado The Journal Aug 28 1915 p 782

Von Litzner M Detection of Focal Reaction after Tuberculin Test *Munchen med Wchnschr* Aug 10 1916 abstr The Journal Sept 25, 1915 p 1148

Clovis E E Use of Tuberculin Reaction in Diagnosis of Pulmonary Tuberculosis *West Virginia Med Jour* February 1916

Shelter, H Intradermal Tuberculin Reaction in Diagnosis of Tuberculosis in Guinea Pigs *Deutsch med Wchnschr* Jan 20 1916 abstr The Journal March 11 1916 p 845

Zitronblatt, A Y Skin Tuberculin Test in Surgical Practice, *Russk Vrach* 1915, 14, No 30 abstr, The Journal March 11, 1916 p 850

REMOVAL OF BURNT POWDER FROM THE SKIN

To the Editor —Please give me the best treatment for removing burnt powder from the skin, the result of a pistol shot

W H Smith M D, Goldsboro N C

Answer —A reply to this question appeared in Queries and Minor Notes, The Journal, Nov 14, 1908, p 1716 In brief it was stated that if the patient is seen shortly after the accident, the gunpowder grains can be picked out readily Much of the powder can be removed by the same process later on, although this is tedious and difficult Watson and Keyes advocated the use of a cutaneous punch or trephine similar to that used for removing comedones The punch is placed over the powder mark and pressed down firmly Care should be taken not to enter the skin too deeply The small portion of skin which projects from the trephine can be snipped off and a soothing ointment applied Hydrogen peroxid is sometimes used, either full strength or three parts to one of glycerin Crile applies hydrogen peroxid until it has penetrated under the powder grains, the effervescence forcing them out of their bed

In case the powder marks are old they may be removed in the same manner as tattoo marks Methods of doing this are described by W A. Pusey, "Principles and Practice of Dermatology," in the chapter on 'Tattoo Marks and Powder Stains,' p 814, and also in Queries and Minor Notes The Journal, July 22, 1911, p 310, Sept. 12, 1912, p 895, and Jan 24, 1914, p 315

TREATMENT OF SEBORRHEA OF SCALP

To the Editor —In my books on skin diseases I find no lotions for seborrhea of the scalp except those containing resorcin This is so scarce and high priced that I cannot use it Could you give one or more formulas containing drugs that may be substituted for resorcin?

George G Smith M D, Chagrin Falls Ohio

Answer —A good lotion for seborrhea of the scalp is the following

	gm or c c		
Mercuric chlorid		5	gr vii
Chloral hydrate	15		℥ ss
Perfumed spirit N F	30		℥ i
Water sufficient to make	500		O i

This can be used on the scalp and hair daily or every other day It is fully as effective as the resorcin solution, and much more agreeable to use In conjunction with such a lotion, either in case of oily hair or of dandruff, it is well to use on the scalp occasionally an ointment like the following

	gm or c c	
Salicylic acid	1 to 2	gr xx to xxx
Benzoic acid	3 to 4	gr xl to lx
Precipitated sulphur	3 to 4	gr xl to lx
Petrolatum	30	℥ i

This is applied occasionally—once in four or five days to once in eight or ten days—and is followed by shampoo in from thirty-six to forty-eight hours

REQUIREMENTS TO PRACTICE IN THE HAWAIIAN ISLANDS

To the Editor —Please inform me as to the requirements for license to practice in the Hawaiian Islands

Jois Morita Baltimore

Answer —To obtain a license in Hawaii the applicant must be a graduate of a reputable medical college having not less than four years of study, and must pass an examination in all the branches of the medical curriculum There is no reciprocity Examinations are held by appointment between the board and candidates The examination fee is $10 Address Dr W L Moore, secretary, Board of Medical Examiners Boston Building, Honolulu

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Illinois Chicago Jan 24 26 Sec, Dr C St Clair Drake Capitol Bldg Springfield

Iowa Des Moines Feb 6 8 Sec Dr G H Sumner, Capitol Bldg, Des Moines

Kansas Topeka, Feb 13 Sec Dr H A Dykes, Lebanon

New York New York City, Albany Syracuse and Buffalo, Jan 29 Feb 2 Chief Examinations Division H H Horner, University of the State of New York Albany N Y

Vermont Montpelier Feb 13 Sec Dr W Scott Nay Underhill

District of Columbia October Report

Dr Edgar P Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Oct 10-12, 1916 The total number of subjects examined in was 16, total number of questions asked, 80, percentage required to pass, 75 The total number of candidates examined was 15, of whom 10 passed and 5 failed Three candidates were licensed through reciprocity The following colleges were represented

College	Year Grad	Per Cent
PASSED		
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University of Maryland	(1915) 78 6	87
Temple University	(1915)	79 2
FAILED		
George Washington University	(1916)	71 4
Howard University	(1911)	66
College of Phys and Surgs Boston	(1916)	68
Temple University	(1915)	74
Meharry Medical College	(1916)	71 2

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
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Johns Hopkins University	(1911)	Penna
Barnes Medical College	(1903)	W Virginia

Colorado October Report

Dr David A Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, Oct 3, 1916 The total number of subjects examined in was 8, total number of questions asked, 80 percentage required to pass 75 The total number of candidates examined was 12 of whom 8 passed, including 1 osteopath, and four failed, including 1 osteopath Eighteen candidates were licensed through reciprocity, and one osteopath was granted a reregistration certificate The following colleges were represented

College	Year Grad	Per Cent
PASSED		
University of Colorado	(1911)	88 3
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Northwestern University	(1916)	87 4
Rush Medical College (1915) 83 6	(1916)	85 4
Jefferson Medical College of Philadelphia	(1914)	84 3
University of Pennsylvania	(1915)	81 5
FAILED		
St Louis College of Physicians and Surgeons	(1915)	63 7
John A Creighton Medical College	(1907)	71 7
Lincoln Medical College	(1916)	67 9

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Hering Medical College	(1904)	Illinois
College of Physicians and Surgeons Chicago	(1901)	Iowa
Baltimore Medical College	(1906)	Georgia
Homeopathic Medical College of Missouri	(1895)	Missouri
University Medical College of Kansas City	(1908)	Kansas
Washington University (1906)	(1907)	Illinois
John A Creighton Medical College	(1905)	Nebraska
Bellevue Hospital Medical College	(1875)	New York
New York Homeo Med Coll and Flower Hospital	(1910)	New Yokr
University of Buffalo	(1915)	New York
Miami Medical College	(1894)	Minnesota
Medico Chirurgical College of Philadelphia	(1902)	Penna
University of Pennsylvania	(1912)	Penna
Western Pennsylvania Medical College	(1895)	Penna
University of Tennessee	(1915)	Tennessee
Vanderbilt University (1908) Alabama	(1913)	Tennessee

Idaho October Report

Dr Charles A Dettman, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Wallace, Oct 3, 1916 The total number of subjects examined in was 11, total number of questions asked, 110, percentage required to pass, 75 The total number of candidates examined was 12, all of whom passed Four candidates were licensed through reciprocity The following colleges were represented

College PASSED	Year Grad	Per Cent
Chicago College of Medicine and Surgery	(1913)	83
University of Illinois	(1916)	88
Kentucky School of Medicine	(1879)	78
Tufts College	(1907)	82
Detroit College of Medicine	(1912)	81
Barnes Medical College	(1910)	83
Columbia University Coll of Physicians and Surgeons	(1903)	86
University of Oregon	(1906)	87
Jefferson Medical College of Philadelphia	(1915)	86
University of Vermont	(1914)	83
Marquette University	(1913)	85
McGill University	(1902)	88

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
George Washington University	(1906)	Utah
Chicago Medical College	(1876)	Utah
Rush Medical College	(1915)	Utah
University of Illinois	(1914)	Utah

Iowa October Report

Dr Guilford H Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Oct 17-19, 1916 The total number of subjects examined in was 8, total number of questions asked, 100, percentage required to pass, 75 The total number of candidates examined was 18, all of whom passed Fourteen candidates were licensed through reciprocity The following colleges were represented

College PASSED	Year Grad	Per Cent
Georgetown University	(1916)	84
Atlanta Medical College	(1916)	82 9
Chicago College of Medicine and Surgery	(1911)	84 4
Northwestern University	(1906) (1916)	77 5 93
Rush Medical College	(1914)	92 5
University of Illinois	(1914) (1916)	94 88 2
Indiana Medical College Purdue University	(1907)	94
State University of Iowa College of Medicine	(1916)	81 4
Tulane University of Louisiana	(1915)	83 9
Harvard University	(1916)	84 6, 88 2
Homeopathic Medical College of Missouri	(1903)	77
University of Pennsylvania	(1904) (1916)	82 91 5
Woman s Medical College of Pennsylvania	(1916)	87 9
Vanderbilt University	(1915)	88 7

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Atlanta Medical College	(1915)	Georgia
Chicago College of Medicine and Surgery	(1910)	Kentucky
	(1913)	Wisconsin
Illinois Medical College	(1905)	Ohio
Keokuk Med Coll Coll of Phys and Surgs	(1908)	Kansas
University of Minnesota	(1896) (1914)	Minnesota
Barnes Medical College	(1909)	Missouri
National University of Arts and Sciences	(1914)	Missouri
St Louis College of Phys and Surgs	(1908)	Wisconsin
St Louis University	(1915)	Missouri
Washington University	(1915)	Missouri
John A Creighton Medical College	(1912)	Nebraska
Marquette University	(1914)	Wisconsin

Minnesota October Report

Dr Thomas S McDavitt, secretary of the Minnesota State Board of Medical Examiners reports the oral, practical and written examination held at Minneapolis, Oct 3 6, 1916 The total number of subjects examined in was 18, total number of questions asked, 80, percentage required to pass, 75 The total number of candidates examined was 8, all of whom passed Eleven candidates were licensed through reciprocity The following colleges were represented

College PASSED	Year Grad	Per Cent
Rush Medical College	(1916)	84 85 85
Johns Hopkins University	(1915)	87, 90
University of Michigan	(1884)	78
University of Minnesota	(1916)	85
Columbia University	(1914)	89

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
Northwestern University	(1901) (1911)	Illinois
Rush Medical College	(1911) (1915)	Illinois
University of Illinois	(1915 2)	Illinois
State University of Iowa Coll of Homeo Med	(1915)	Iowa
State University of Iowa College of Medicine	(1901)	Iowa
University of Michigan	(1912)	Michigan
Marquette University	(1913) (1916)	Wiscon in

Book Notices

Focal Infection The Lane Medical Lectures By Frank Billings Sc D, M D Delivered Sept 20, 21, 22, 23 and 24 1915 Stanford University Medical School, San Francisco, Calif Cloth Price, $2 Pp 166 New York D Appleton & Co 1916

This volume contains the Lane lectures delivered by Dr Billings at the Stanford University Medical School in September, 1915

In the introduction Dr Billings traces in brief the history *of the development of* our knowledge of focal infections, noting especially the cooperative spirit between the clinicians and laboratory workers—the team work in which even nurses and patients took part—which made these investigations possible He shows how numerous research institutions were gradually drawn into the work, and with characteristic modesty disclaims the larger share of the credit for the investigations, naming himself as spokesman of those who took part in the work Those who know will say that he was the leader

In his first lecture, which is devoted to a general consideration of the subject, Dr Billings rapidly traces the growth of bacteriology and antiseptic and aseptic surgery He then takes up the etiology of focal infections, paying special attention to work on pyorrhea alveolaris It is interesting to note his position as to the importance of the endameba He says (p 6)

> Doubtless the endamebas play an important part in the occurrence of pyorrhea alveolaris and permit infection with the pyogenic bacteria The bacteria present in the infected areas are the important factors however in the causation of general infection from the focus

He then takes up other infections occurring in the mouth, throat, larynx and pharynx, naming the various organisms which usually inhabit these regions and produce diseases in them He considers also focal infections in the gastro-intestinal tract and its appendages, showing the relation of the popular idea of autointoxication to those infections He names, too, the organisms from the throat, nose and teeth producing lesions in the gastro-intestinal tract He considers the genito-urinary tract and then the general systemic effects of focal infections, the diagnosis of focal infection the various methods of dissemination of the organisms from the focus to the rest of the body, and finally the relation of infection to anaphylaxis

The second lecture concerns the streptococcus-pneumococcus group and the various transmutations which the members of this group undergo In this work the laboratory study was carried out chiefly by Dr Rosenow working under the direction of Dr Hektoen, and obtaining his clinical material largely from Dr Billings The work represents perhaps one of the most important studies of the last decade In this chapter are illustrations showing the transmutation of a hemolytic streptococcus from a case of scarlet fever into a *Streptococcus viridans* and into a pneumococcus Here Dr Billings quotes extensively from Rosenow s work on the elective localization of streptococci (The Journal, Nov 13, 1915, p 1687), and gives in detail the technic by which Dr Rosenow obtained his results

The third lecture concerns the acute diseases related to focal infection These diseases have always constituted one of the most puzzling problems of medicine Acute rheumatic fever, rheumatic endocarditis, myocarditis and pericarditis, chorea, the various gonococcal infections malignant endocarditis, nephritis, appendicitis, cholecystitis, gastric ulcer, pancreatitis, erythema nodosum, herpes, myelitis, thyroiditis and iridocyclitis are all shown to be frequently related to a focus of infection elsewhere in the body Credit is given to Poynton and Paine, the English investigators, whose early observations have been so brilliantly confirmed by American investigators When one contemplates the list of appalling diseases which have been taken from obscurity and made susceptible to scientific treatment, one begins to realize the greatness of the achievement In this chapter, too, are fifty-four illustrations showing the pathologic effects of the organisms, as well as the various phases of the organisms themselves

Naturally, the next lecture is devoted to the chronic diseases related to foci of infection, and every physician who has attempted to analyze and treat a chronic infectious arthritis, a chronic peptic ulcer or a chronic endocarditis will realize the great value of the investigations relating to these conditions The following statement is a short summary of one of the important findings (p 125)

> The focus of infection which undoubtedly causes the *Streptococcus viridans* bacteremia and chronic malignant endocarditis is often alveolar abscess. Of this we have had numerous clinical examples Coincident cultures from the alveolar abscess and from the blood have yielded strains of *Streptococcus viridans* When these nascent cultures were intravenously injected into animals, typical endocardial lesions resulted Doubtless a focus containing this streptococcus may be located in the tonsil or nasal sinus or elsewhere which may be the source of the cardiac infection

To many physicians the final lecture headed "Treatment" will be the most important The first part of the lecture is devoted to the prevention of focal infections The author then takes up the treatment of the resulting diseases, and in concise statements points out the necessary procedures The lecture concludes with a discussion of serum and vaccine therapy and the use of nonspecific protein injections

Many readers will, of course, be especially interested in Dr Billings' view on the use of vaccines in these conditions He states that it soon became apparent that estimations of the opsonic indexes were not an adequate guide to the effects of the vaccines Patients were then studied in two groups, one with vaccine and one without, and it was found that (p 154)

> The final result was quite as satisfactory without as with vaccine, in patients suffering with chronic infectious arthritis and acute rheumatism
>
> Patients suffering with chronic *Streptococcus viridans* endocarditis were not benefited by autogenous vaccines Indeed, I believe some of them were made distinctly worse when moderately large doses of vaccines were used

Dr Billings' concluding statement as to the therapeutic use of vaccines is a classic admonition which deserves a prominent place on the desk of every physician—in fact it might well be framed and pointed out to the ubiquitous detail man who foists his ultra-unscientific preparations on the unwilling physician (p 154)

> Based upon the work of Wright but disregardful of the principles developed by him therapeutic vaccination has progressed in this country into an irrational fad which is intensified and made degrading to the medical profession and harmful to the patients by commercial greed
>
> We are forgetful of the principles of medical practice of our fathers They recognized the influence of old age, exposure to extreme cold, poverty and poor nutrition physical and mental exhaustion faulty personal hygiene and other debility producing factors in the causation and also in the prolongation of infectious and other diseases They also recognized the necessity of the removal as far as possible of all these contributory etiologic factors in the management of the patient The modern vaccinationist pins his faith on the advertised specific virtues of stock vaccines, which he may employ in polyvalent form to insure a sure shot effect He believes vaccines will arouse specific defenses in the tissues of the patient in spite of all contributory etiologic factors of disease Therefore the rational diet proper baths passive and active exercise correction of personal uncleanliness and alcohol misuse are neglected The practitioner usually is ignorant of all laws of immunology It is this want of knowledge which makes him believe the ridiculous statements made by the manufacturers of vaccines
>
> Modern experimental investigation of the physiologic action of drugs has done much to restrict the abuse of drug therapy of the past So too, must the practitioner be made acquainted with what we know and do not know of immunology We must restrict the therapeutic use of bacterial antigens to those conditions which the known laws of immunity and scientific clinical experience have proved to be safe and of value

The final statement (p 157) is

> The mode of action of the nonspecific albumose antigens injected intravenously is not well understood Their use in acute and chronic infectious diseases affords a fruitful field of combined research by the immunologist and clinician

As readers of The Journal know, many new studies in this field are beginning to appear in medical literature

The book is slightly marred by a few minor typographical errors, but these, of course, will be caught in the next impression

The American Encyclopedia and Dictionary of Ophthalmology Edited by Casey A Wood, M D C M, D C L Professor of Ophthalmology and Head of Department, College of Medicine University of Illinois Volume 9—Institutions for the Blind to Lemotes Cloth Price $6 Pp 6419 to 7190 with illustrations Chicago Cleveland Press, 1916

This volume maintains the high standard of its predecessors There are so many articles of merit that it is impossible to enumerate them There is one, however, of such transcendent excellence as to demand special mention This is Dr Shastid's masterly monograph on the "Legal Relations of Ophthalmology" The interest of this article is by no means confined to the special branch of medicine with which it purports to deal In the introductory part the general question of technical evidence in this and other countries is treated, and the judicial organization is briefly but sufficiently explained This part of the article should be read by every medical man and every person interested in the question of expert testimony

The Medical Record Visiting List or Physicians' Diary for 1917 Leather Price, $1 50 (for 60 Patients a Week) New York William Wood & Co, 1916

The Physician s Visiting List (Lindsay & Blakiston's) for 1917 Leather Price $1 25 Philadelphia P Blakiston's Son & Co

These lists have been issued for 1917 with revised tables of dosages in apothecary and metric systems, based on the new pharmacopeia They contain the usual ruled pages for entering daily calls and visits, memorandums, consultations, obstetric engagements, vaccinations, deaths, addresses, and cash account Extra pages are devoted to tables of weights and measures, duration of pregnancy treatment of poisoning etc The books are nicely prepared in leather covers with a pocket for extra papers and a pencil in each Perhaps three fourths of the general practitioners of the country use these books as the first step in daily bookkeeping They are a valuable accessory to businesslike practice

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Social Medicine, Medical Economics and Miscellany

NOTES ON ONE THOUSAND, THREE HUNDRED AMBULANCE CALLS IN NEW YORK

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The character of work and the methods employed in an emergency ambulance service are of interest not only to the general practitioner, but perhaps more particularly to those who are contemplating engaging in such a service The fact that there has been no description of this type of work in recent years prompted the writing of the following brief account of a six months' service in New York

New York is divided into ambulance zones, the ambulance calls of each zone being answered by a given hospital, which acts in cooperation with the police department Each of these hospitals maintains from two to four ambulances and in case these are all out when a call comes in, it is referred to the hospital in an adjoining district

Any citizen who is sick or injured is entitled to the ambulance service An ambulance may be summoned (*a*) by asking a policeman, who is expected to satisfy himself that it is really needed before calling in from the signal box, or (*b*) by calling either police headquarters or the hospital directly giving one's own name and address and the nature of the case When a call is received in the latter way, a patrolman is dispatched at once from the nearest police station to the scene of the call Prisoners in the police stations are also treated by the nearest "ambulance surgeon"

The district of the New York Hospital includes the territory bounded by Forty-Second Street, Fourth Avenue, Fourteenth Street and the Hudson River The service is so arranged that on alternate days the second assistant house surgeon answers all first calls of the ambulance, and is on first call for patients coming to the accident room from 6 a m until the following 6 a m The second assistant house physician answers the second calls of the ambulance, and the third calls are taken by the other second assistant house surgeon who was on first call the preceding day, except during the six or nine hours he is off duty During the twenty-four hours on first call, the ambulance man averages about fifteen calls (twenty-three being a maximum) He is on duty for six months, and answers in this time from 1,200 to 1,400 calls

TABLE 1—CHARACTER OF CASES

Condition	Number
Lacerated wounds	269
Contusions and abrasions	171
Fractures 71, and possible fractures, 34	105
Alcoholism, acute and chronic	90
Gastro enteritis, etc	66
Syncope (fainting spells")	46
Hysteria	45
Dead on arrival	44
Epilepsy	35
Cardiac and cardiorenal cases	25
Tuberculosis	24
Diagnosis uncertain	24
Psychopathic cases	24
Arthritis and allied disorders	20
Labor	19
Pneumonia 11 and suspected pneumonia 8	19
Sprains ankle, 11 wrist 2, back 2	15
Incomplete abortion	14
Appendicitis 12 and suspected appendicitis 2	14
Hemiplegia 5 cerebral hemorrhage 6 and cerebral neoplasm 2	13
Dysmenorrhea	12
Burns	12
Gonorrhea chiefly epididymitis	10
Poisoning gas 3 strychnin, 1, iodin, 1, phenol (carbolic acid), 1, smoke 3	9
Heroinism	8
Salpingitis 4, metrorrhagia 2 endometritis 1, vulvovaginal abscess, 1	8
Dislocations shoulder, 4 thumb 1, little toe 1	6
Perforated gastric ulcer	5
Miscellaneous including convulsions 5 erysipelas 5, gunshot wounds 4, poliomyelitis 4 asthma 4 rectal abscess 4, carcinoma 3 cholelithiasis 2 tonsillitis 2, chorea 2, nephrolithiasis, 1 large uterine fibroid, 1, measles, 1 influenza, 1, vomiting of pregnancy, etc	155

The disposal of patients for whom the ambulance has been called is left to the discretion of the ambulance surgeon Either he may (*a*) treat the patient outside the hospital (in his home, the police station or elsewhere) as in the case of small lacerated wounds hysterical attacks, etc or (*b*) he may bring the patient to his own hospital where either he may treat the patient himself, or if the injury or disease is of a more serious nature the patient is admitted to the ward and seen by the house surgeon or physician, who in turn consults the attending surgeon or physician Patients with chronic conditions including pulmonary tuberculosis, acute venereal diseases and alcoholism, are taken directly to Bellevue, the large city hospital

The ambulance surgeon's bag contains a very practical outfit, including sterile instruments, gauze, needles, suture materials, and rubber tissue drains, razor, scalpel, mouth gag, stomach tube, sterile catheter, tracheotomy tube aromatic spirits of ammonia, usually administered by inhalation, tincture of iodin, soap solution, collodion, whisky, chloroform, alcohol and ether, ergot, baby cord, argyrol, nasal tampons, amyl nitrite pearls and a hypodermic outfit with solutions of the commoner drugs in rubber capped vials In the ambulance are kept padded splints of various sizes, bandages, boric ointment and sodium bicarbonate solution

The character of the cases is quite variable, and may best be understood by reference to Table 1, which shows the diagnoses made, some of which, however, proved to be incorrect The ambulance man is expected to make a diagnosis in the minimum of time, his chief concern being, "Is the patient's condition serious enough to warrant his being taken to the hospital?"

The lacerated wounds were chiefly of the scalp, and the majority of these patients were alcoholic, the injuries being sustained principally in falls or in fights, although there were many exceptional cases, as one of a patient who was struck on the head by a bolt which fell several stories from a structural steel work Street accidents, particularly those due to automobiles, accounted for a large number Fourteen of the 269 cases were stab wounds of varying extent, from a wound which laid wide the cheek, to multiple futile hacks with a penknife The severest lacerated wounds seen were in the cases of a longshoreman whose chest was torn through to the pleura and of a boy of 9 who had been run over by a heavy motor truck The smaller wounds were treated by tincture of iodin, a few horsehair sutures and a sterile dressing, and the patients were referred to a hospital for further treatment The more severely injured were brought directly to the hospital

In the class of cases under the heading "contusions and abrasions," the *chief interest lay in the responsibility* of excluding fractures or possible fractures

The fractures and possible fractures comprised an interesting group whose variety is indicated by Table 2

In the cases of fractures of the long bones, the clothing was rarely cut away, but a splint of adequate length (from foot to axilla in cases of fractured femur) was carefully bandaged on outside the clothing before the patient was moved A considerable number of the fractures were set and put up in molded plaster-of-Paris splints at the hospital by the ambulance surgeon himself In compound fractures an attempt was always made to place sterile gauze over the wound before applying the splint Two of the severest cases of this class were an attempted *suicide in front of a subway train in which* the patient sustained a compound fracture of the leg, and the other a "jitney-bus" crash in which the two patients sustained a compound fracture at the shoulder and a compound fracture of the leg, respectively The cases classed as "possible fractures" included those in which the possibility of fracture could not be excluded In these first-aid treatment should be identical with that of actual fractures

The alcoholics presented an interesting but uninspiring group Most of them were chronic alcoholics, the classical "bum" of common parlance, worthless derelicts with shaking hands, without jobs, whose beds were the park benches and whose blankets were newspapers Those with delirium tremens varied from the harmless "rat hunter" to those violent ones whom only the policeman's "nippers" could subdue The acute alcoholic coma, which caused the friends or bystanders to think the patient on the verge of death, was treated by having the extremities firmly held by the strongest persons around (the policemen) and by holding a large piece of gauze saturated with aromatic spirit of ammonia tightly over the nose and mouth The result was generally startling, and after a few emphatic remarks the patient would get up and walk home An ambulance service tends to give one an alcoholic point of view, and the temptation to forget that the alcoholic may suffer from other diseases as much as any one else is the ever-present danger of the ambulance surgeon I shall not forget one case of a bedraggled woman found in the street at 3 a m, whom I thought drunk, and took to the police station I attempted to revive her by compelling her to inhale the usual aromatic spirit of ammonia, but she died within ten minutes after her arrival This was a lesson not to be forgotten

TABLE 2—FRACTURES AND POSSIBLE FRACTURES

	Number
(*a*) Fractures	
Humerus	3
Clavicle	2
Skull	9
Colles	5
Patella	2
Nose	4
Fibula	3
Femur	3
Tibia	6
Radius and ulna	1
Jaw	3
Vertebra	1
Sacrum	1
Small bones of foot	4
Ankle	3
Compound including arms, legs, fingers etc	17
Miscellaneous	4
	71
(*b*) Possible Fractures	
Skull	14
Ribs	8
Small bones of foot	5
Vertebra	4
Ankle etc	3
	34

The group classed as hysteria comprised patients who best were calculated to try one's patience and whose treatment, moreover, was the most difficult of any of the ambulance patients. The subjects were chiefly young and emotional girls engaged in the intensive painstaking work of clothing manufacture, in which they seem constantly to be subjected to a high pressure to increase their output of work and not uncommonly are antagonized by the hectoring of selfish supervisors. The patient is generally found surrounded by a group of excited girls whose often frantic efforts to revive or to quiet her generally aggravate her condition. She may be almost rigid and anesthetic, or may be crying wildly. Tact, a few comforting words or the suggestion of a new train of ideas occasionally suffice to bring the patient back to normal condition. More commonly the best results seem to be obtained by refraining from sympathy, of which the patient probably has had generous measure before the physician has arrived, and by employing harsh vigorous words, or, as a last resort, forcibly compelling the patient to inhale aromatic spirit of ammonia. This rarely fails to bring about indignation—and a cure.

In the forty-four cases in which the patient was found dead on arrival, no attempt was made to assign a cause of death, this being a duty of the coroner's physician. The ambulance man has merely to pronounce the patient dead. The causes were often apparent, however—numerous cardiac failures, suicides chiefly by means of illuminating gas, falls from high buildings, and in one case each revolver bullet, elevator accident, and a wagon wheel passing over the head of the patient (a boy).

Several desperate cases of pulmonary edema were seen. By the administration of atropin and morphin it was usually possible to get these patients to the hospital.

No deliveries were made on ambulance calls. Patients in labor were taken to a hospital as rapidly as possible. When, as was frequently the case, the baby was born by the time the physician arrived, the cord was cut, the placenta expressed if necessary, and the patient was invariably offered the opportunity of going with her baby to the hospital.

Though there are only eight cases of heroinism listed above, not a few of the other patients were drug habitues. These patients never told where they obtained the drugs but almost invariably attributed the acquisition of their habit to "bad company."

There were a number of major surgical emergencies. Three perforated gastric ulcers were recognized. In one of four days' standing, with general peritonitis, the diagnosis was missed, while in another case in which the diagnosis of perforated gastric ulcer was made necropsy a few days later showed an acute hemorrhagic pancreatitis. There were a number of cases of acute appendicitis, two cases of acute cholecystitis, two cases of ruptured ectopic gestation and one of intestinal obstruction.

The four dislocated shoulders were successfully reduced on the ambulance calls. The patients with erysipelas were taken to Bellevue Hospital, and the board of health was notified of the discovery of cases of contagious diseases.

The ambulance service brings the physician into all kinds of places, from the Eleventh Avenue saloon fights to the Waldorf, from accidents in the crowded shopping districts to the squalor of the most crowded tenements, into the holds of ships, up in the iron framework of new buildings, behind the scenes at the theaters and sometimes to spectacular fires. On one occasion I was given rubber boots and lowered in an iron bucket down a concrete shaft to the great Catskills aqueduct nearly 300 feet below Broadway. For two hours I was in a wreck in the entrance to a Pennsylvania Railroad tunnel while a heroic conductor gamely kept his nerve until the steel wreckage which held his foot fast had been cut away by the oxyacetylene flame. I have seen a blind man who had bled to death from a ruptured varicose vein while his friends looked on helplessly, and the touching efforts of a Frenchman stricken suddenly dumb by a cerebral hemorrhage, to write us of his condition. On one call an excited policeman rushed up saying 'Doc, this guy's taken iodin and gone mad." But energetic lavage and subsequent questioning revealed the fact that he had tried to frighten his mother-in-law by spilling the iodin on his shirt front. The most bizarre call occurred in the case of F. J. M., Oct. 30, 1916, who, while under the influence of alcohol, fell ten stories through an iron grating onto the upturned nozzle of an automatic sprinkler. The impact of his body not only turned on the sprinkler, but simultaneously sent in a call to the city fire department. The firemen rushed into the building with their fire hose and, finding no fire, turned the water on the unconscious man, thus reviving him much to his astonished indignation. This man recovered in spite of fractures of a humerus, tibia and several ribs, and multiple lacerations.

A word of genuine praise must be said of the police with whom my duties have associated me during the last six months. Their willingness to be of any service to the physician, their good nature and patience under the most trying circumstances, and their unfailing courage and faithful performance of their duties have aroused my sincerest admiration.

In conclusion, two well-tried rules which are applicable to ambulance surgeons might be suggested: never lose your temper, and play safe.

8 West Sixteenth Street

Medicolegal

Validity and Application of Law Against Deceptive Advertising

(State Board of Medical Examiners vs. Jordan (Wash.), 158 Pac. R. 982)

The Supreme Court of Washington reverses a judgment of the superior court which reversed an order of the board revoking the defendant's license. The complaint alleged "That the defendant is a licensed practitioner of medicine and surgery under the laws of the state of Washington, that he advertised his medical business in the Seattle *Daily Times* of Wednesday, Oct. 1, 1913, and in sundry other editions of said Seattle *Daily Times* during the latter part of 1913 and the year 1914, that such advertising of his medical business was such as intended or has a tendency to deceive the public or impose upon credulous or ignorant persons and so be harmful or injurious to public morals or safety, in which respect defendant has been guilty of unprofessional conduct." The supreme court says that this complaint was sufficient. The statute has wisely allowed the defendant a first hearing before brothers in his own science. To say that such persons, unacquainted with the law, must conduct these examinations or invite them with legal nicety will not do. This court so held even on misdemeanor for practicing without a license. The courts uphold the less technical practice. The defendant's rights were easily protected either by demand for particulars or by motion to make more definite. The case was not criminal by its nature. The legislature had an undoubted right to classify this proceeding, and it did so by providing that appeals from the board should stand for trial 'in all respects as ordinary civil actions, and like proceedings be had thereon.'

The portion of the statute more particularly involved in this case was that part of the section defining unprofessional conduct which includes 'All advertising of medical business which is intended or has a tendency to deceive the public or impose upon credulous or ignorant persons and so be harmful to public morals or safety." It was contended that there is an uncertainty in this subdivision, and that it furnishes no standard by which either board or court can determine what advertisement offends. But the statute enumerates seven things that constitute unprofessional conduct, and the one relating to advertisement could not well be made more specific. To describe in express terms a faulty advertisement is practically to instruct the defendant how to evade it, and as to the limitless variations in language, symbols and verbal or pictorial allurements no human ingenuity could possibly anticipate and forestall them. To the court there seems a happy reply on any basis to arguments of this sort. Under the Washington statute the defendant is not tried on the advertisement alone, but on the advertisement and his capacity, qualifications or actions to fulfil it The appeal to the superior court secures a trial de novo, or anew In such trial a proper line of proof is not only the advertisement, but also the competence of the defendent to do what he advertises he can do The issue then becomes like that in getting money by false pretenses, which no legislature has ever been required to define The crime is determined not from the representations alone, but from all the actions and circumstances in which intent can be gathered The Washington law has not prevented a practitioner from advertising cures or inviting the public to his healing, but only advertisements to beguile It attacks not mere unethical conduct, but wrongful conduct If from the testimony it appears that he either does not cure the diseases, never has cured them, cannot cure them, or does not know what they are, the law has then a right to say it is advertising to deceive It is not merely unethical, but immoral, to get money from the poor, the simple or the ignorant by advertising the cure of what is incurable, and the courts will call that incurable which the present stage of knowledge so pronounces Nor was it incumbent on the state to show whether actual harm had yet come to any one through this practitioner That is not material The state aims to protect the purse as well as the health from quacks, and the other burden, if cast on the board, would, through the many confusing and contributing influences on the health of patients, make proof exceptionally difficult Neither was the court impressed by some twenty witnesses testifying to the defendant's cures, nearly all the patients being uncertain what their ailments really had been

Illegal Practicing Without Charging Fees — Not Emergency Service

(People vs Vermilion (Calif) 158 Pac R 504)

The District Court of Appeal of California, Second District, affirms a conviction of the defendant of having practiced a system and mode of treating the sick and afflicted without possessing a certificate issued by the state board of medical examiners entitling him so to do The court says that it was contended that he could not be properly convicted unless it were shown that he charged a fee for his services, but the court thinks that this contention must be decided against him The statute under which the prosecution was had makes it unlawful for a person to practice any art of healing without having first obtained a certificate from the medical board, and the court thinks the act is intended to, and does, cover such practice whether the service is gratuitous or not However, it was shown in evidence by the defendant's own testimony that he had engaged in the practice of a healing art, styling himself a “chiropractic,” for a period of five years immediately preceding the date of his arrest It was shown that he maintained a regular office in a business building in the city of San Diego, and there was testimony showing that he had treated in a professional way three different patients who were suffering from bodily ills There was evidence also that in one case payment was offered and accepted by him in return for the services rendered The defendant admitted the receipt of this money, but declined to state whether he regularly made a charge for his services The fair inference from all the testimony, which the court thinks the jury was entitled to draw, was that he regularly practiced a healing art, and, furthermore, that he did so for remuneration Some contention was made that the service which the defendant rendered to persons described in the evidence was in the nature of emergency service not prohibited by the medical act There was no evidence tending to show that the services were of an emergency character, that is, services rendered by way of affording temporary relief until the services of a regular practitioner could be procured The persons who were thus treated were shown to have previously had the attention of physicians, and their ailments were more or less of a chronic sort, and that the services of the defendant were sought, to some extent at least, as a last resort and after other practitioners had failed to afford relief Treatment so rendered could not, in any sense, be classed under the head of “emergency service”

Society Proceedings

COMING MEETINGS

Congress on Medical Education Public Health and Medical Licensure Congress Hotel, Chicago, Feb 5 6
Western Roentgen Society, Hotel Sherman Chicago Feb 16 17

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty Ninth Annual Meeting held at White Sulphur Springs W Va Dec 11 13 1916

The President, Dr Thomas S Cullen, Baltimore, in the Chair

Biochemistry of Topical Applications Use of Boric Acid in Septic Infections

Dr Edward H Ochsner, Chicago Osmosis is not dependent on the semipermeability of the membranes, but on the chemical affinity different substances have for each other Concentration of the solution is also an important determining factor Clinically, laboratory experiments can be duplicated by using solutions of boric acid and water as a wet dressing A saturated solution of boric acid when applied to the skin will invariably appear in the urine in appreciable quantities within an hour, and if a wet dressing is kept in place for a considerable time, the amount of boric acid which appears in the urine may rise as high as 0.2 per cent In order to be effective, boric acid must be used in saturated solution While boric acid does not destroy pathogenic bacteria, it greatly reduces their virulence Wet dressings of boric acid are much more effective in streptococcus, *Staphylococcus albus,* and *S citreus* infections than in any other type of infection In order, however, that boric acid may reach its maximum of efficiency, some other directions should be observed, such as absolute rest in bed, proper attention to elimination, relief of pain, if possible without the use of opiates, by the addition to the solution of from 10 to 33 per cent of 95 per cent alcohol, painting the inflamed area with 95 per cent phenol (carbolic acid) until it turns white, and then removing the excess of acid with alcohol, elevation of the extremity with the muscles surrounding the involved joint at equilibrium, incision only when there is macroscopic evidence of pus and after a certain degree of immunity has developed If incision becomes necessary, an Esmarch bandage should first be applied whenever possible, and then the incised wound should be swabbed with tincture of iodin before the Esmarch bandage is removed and the part should be manipulated as little as possible

Treatment of Fractures of the Femur, Especially in the Old

Dr George Tully Vaughan, Washington, D C I do not believe in operating in every case of fracture of the femur or in putting foreign material into the tissues, except when necessary For neck fractures, with impaction and good position, plaster of Paris is applied, with the limb in normal extension, with displacement of fragments, Whitman's extreme abduction and plaster, if this should fail to effect reduction, I use the open operation, and the use of a screw or other means should be considered For shaft fractures, when Buck's and other methods of extension are not indicated and open operation is decided on, several methods may be used, preferably exposure of the fragments and their coaptation in such a way as to maintain their position by an external splint In oblique fractures this can be done by the interlocking method, that is, inserting one of the sharp ended fragments into the medullary cavity of the other, in transverse fractures, by an intramedullary splint taken from the fractured bone If it is necessary to use metal, the plates and bands are preferred to wire, nails and screws For transverse fractures, I use Lane's plates, and for oblique ones the steel bands of Parham and Martin No weight should be borne for four months on a femur which has been fractured, and good functional results should not be expected sooner than from six to twelve months

Open Treatment of Certain Fractures of the Long Bones

Dr H Horace Grant, Louisville, Ky The advantage of directing the adjustment and fixation of the fragments in most fractures of long bones under the eye is so *positive* as to need only a safe and simple method for general adoption Badly apposed, as well as ununited fractures of the long bones demand undelayed treatment by the open method Fixation by absorbable ligatures requires as much or more manipulation as putting in plates, and wiring of the fragments accomplishes poor fixation with the drawback of the retained foreign body The Lane plate in skilled hands accomplishes, perhaps the best fixation, but carries the serious objection to the inexperienced of infection, and even when all seems to go well, later removal is often required If by a simple inexpensive and safe method of fixation, not even involving the broken surfaces, approximation can be maintained, it should become the ideal method

DISCUSSION

Dr W P Carr, Washington, D C I protest against the recommendation for operating so freely, and against the idea of fixing a long bone in alinement by means of screws, plates or bands There are very few cases of fracture of the femur that require any operation at all

Dr A A Law, Minneapolis The Maxwell-Ruth method of treatment is particularly applicable to fractures of the neck of the femur in old persons

Dr. Alexius McGlannan, Baltimore The essential point in the treatment of fracture of the femur is to reduce the fracture The manner in which we fix the limb is a matter of relative indifference, because the bad results in treating fractures of the neck of the femur are due to the fact that the fracture is not properly reduced It can be reduced by abduction, traction and inward rotation

Dr J M Mason, Birmingham, Ala With the assistance of the fluoroscopic table we have been able to determine immediately what we are accomplishing in reducing fractures

Dr E D Martin, New Orleans One of the most valuable adjuncts in the treatment of femur fractures in old persons is the use of the Hodgen splint. I can recall at least fifty cases in which we made use of this splint with gratifying results

Substitution of the Anal for the Vesical Sphincter in Certain Cases of Inoperable Vesicovaginal Fistulas

Dr Reuben Peterson, Ann Arbor, Mich The operative procedure of substituting the anal for the vesical sphincter was suggested by Jobert in 1836 and Berard in 1845 It was performed first by Maisonneuve in 1851 but his patient died There were seven such operations from 1871 to 1881, twenty-two from 1881 to 1891, seven from 1891 to 1901, and there have been three since Childbirth was given as the cause of the defects causing the incontinence in thirty-three of the forty-one cases In four cases, incontinence followed removal of the urethra and parts of the bladder for malignant disease Sloughing following typhoid and diphtheria, and a gunshot wound was the cause in one case each In ten cases there were vesicovaginorectal fistulas, while in thirteen cases the urethra was destroyed In all the cases, almost without exception, plastic operations had been tried but had failed The woman should have the privilege of choosing such an operation in place of repeated attempts at plastic repair with failure The procedure never will be an ideal operation but is preferable to allowing the woman to suffer from urinary incontinence even if intercourse is interdicted The primary mortality of the operation should be nil In only one instance in the forty-one cases was there a primary death, the first patient in the series, who died of septic phlebitis an avoidable accident today In only two cases was there primary union of the colpocleisis wound but the resulting fistulas heal readily under caustic applications In not a single case of the forty-one was there rectal irritation There was no diarrhea some patients even being constipated Usually the urine is held from one to five hours with one or more formed stools a day In twelve cases the women menstruated through the rectum In nine cases the menstruation ceased after the operation without apparent cause Ascending renal infection did not take place in any of the cases The only doubtful case is that of Rose, in which the patient died ten months after the operation from nephritis which necropsy showed was not due to the operative procedures

Cure of a Double Femoral Aneurysm by Proximal Occlusions with an Autoplastic Fascial Flap

Drs E G Jones and C E Waits, Atlanta, Ga We partially constricted the femoral with an autoplastic flap dissected up from Poupart's ligament for the purpose of treating two aneurysms in the thigh Twenty-six months after the operation the patient remained well, and there were no signs of the aneurysms Function in the leg remained normal, except for some numbness about the calf In order to discover if such a band would be dangerous from the standpoint of erosion and hemorrhage, and if, when so applied, there would be material danger of gangrene or loss of function, we treated the femoral twenty-four times in dogs with uniformly satisfactory results The partial occluding band results in gradual complete occlusion of the vessel Histologic examination from twelve to fourteen weeks after operation shows the fibrous band grafted about the circumference of the vessel

Traumatic Aneurysm of Temporal Artery

Dr J Shelton Horsley, Richmond, Va Since 1896, only five cases of traumatic aneurysm of the temporal artery and its branches have been reported, besides two of my own In neither of my cases was there any evidence of syphilis or other disease of the arteries One was in a youth, aged 19, who received an injury in the right temporal region while playing basket-ball This was immediately followed by a large hematoma which was partially absorbed, but resulted in a small pulsating aneurysm about one-half inch in diameter Operation was done seven months after the injury under local anesthesia, the sac being excised after the arteries were ligated The second case was in a boy, aged 9 years, with a somewhat similar history, being injured while wrestling This aneurysm formed in the temporal artery just above the zygoma It was excised under local anesthesia There was no recurrence in either case

Some Problems of Ureteral Surgery

Dr William R Jackson, Mobile Ala Injuries to the ureter during hysterectomy are more frequent than is perceived at the time of the operation Discovery of the injury is more often made several days after operation than at the time it is performed It often means the sacrifice of the kidney of that side, and sometimes the death of the patient It is better not to attempt to repair the ureter, if there is serious doubt of its accomplishment Even if the operator is an expert, attempts at repair frequently result disastrously Removal of the kidney would be better under such circumstances A kidney should not be removed to cure a leaking ureter until one is sure of the presence of a perfectly sound kidney on the opposite side It is frequently better to ligate the ureter doubly than to attempt to do an anastomosis Before ligating it is well to ascertain if a kidney is present on the other side

Ureter Stricture

Dr Guy L Hunner, Baltimore By far the greatest source of ureter stricture is some distant focus of infection The diagnosis is made on the history, the urine examination, and the physical findings I take definite issue with the prevailing opinion that dilatation of the kidney pelvis and ureter are due to infection While the experimental work of Barney and others may lead to the view that the infection per se results in dilatation, one must remember that an inflammatory ureter with its extremely narrow lumen is more than likely to become partially closed at one of its normally contracted points and thus cause back pressure Many of my patients with sterile urine and no history of previous infection have the dilated ureter and pelvis The ideal treatment for stricture of the ureter is by dilation from the vesicle approach In cases in which dilation cannot be accomplished by the vesicle approach I advise extraperitoneal exposure of the ureter and retrograde dilation This was done in eight of my first fifty cases with excellent results in six Two of my early patients failed to obtain complete relief probably because of insufficient dilation Two of my first fifty patients had resection of the ureter with implantation in the bladder

Cholecystitis With and Without Gallstones

Dr George A Hendon, Louisville Ky Of thirty cases stones were *present in eighteen, or 60 per cent* A history of stomach trouble existed in twenty-five, or 83 plus per cent Nine cases, or 30 per cent, were jaundiced at some period in the history of the complaint

Recurrence of Gallstones

Dr John B Deaver Philadelphia The failure to remove all the gallstones at the primary operation is the most potent cause of recurrence of symptoms This adds emphasis to the arguments which surgeons are continually bringing forth of the importance of early operation Kehr does not hesitate to lay much of the blame for recurrent gallstones on the medical man He points out that in long standing cases the gallducts become dilated, and stones are apt to lodge in the recesses, so that they cannot always be removed or even be detected at operation, and thus give rise to renewed attacks of cholelithiasis My experience, comprising practically 1,200 operations in the last six years for affections of the biliary passages convinces me that the appendix in turn, is the focus of infection for nearly all upper abdominal diseases It is hardly necessary to dwell on the importance of early removal of even a slightly troublesome appendix in order to avoid future trouble Disease of the biliary passages is essentially a surgical and not a medical proposition

Choice of Operative Procedure in Cancer of the Rectum and Pelvic Colon

Dr Charles H Mayo, Rochester, Minn In the five years preceding 1916, our total operability was 53 per cent but in the last three years it has risen to 71 8 per cent, indicating that a chance for cure is now being given to a larger percentage of patients with this otherwise hopeless condition than formerly Of 753 patients a radical operation was performed on 430, with a general operative mortality of 15 5 per cent Before 1910 the operative mortality was 17 8 per cent From 1910 to 1913 it was 17 7 per cent, the operability being 51 per cent In this earlier period a higher percentage of patients were seen late In 1913, 1914 and 1915 the mortality was reduced to 12 5 per cent the operability was raised to 71 8 per cent, and the operative efforts were more radical Of the number of patients operated on, none less than three years ago, one third lived three years or more, and 28 3 per cent lived five years or more The patient with no anal control and with the sigmoid loop eliminated is much better off with an abdominal than with a perineal anus If with loss of the anus the sigmoid loop can be retained, the control will be fair, excepting in case of loose bowel movements Gas, however, is not controlled While the union of resected intestine within the abdomen is not followed by stricture, that affected outside of the peritoneal-lined abdomen is practically always followed by stricture, and will usually necessitate some form of colostomy after much effort to maintain the lumen If by abdominal procedure the division of the bowel below the growth can be made at a point which will leave at least one-half inch or more of peritoneal covered rectum within the culdesac, and the area of the disease to be removed is not too great to prevent coaptation of the divided ends of the bowel, a tube resection can be done with preservation of the control of the anal outlet as a one stage procedure Cancer of the rectum and rectosigmoid which cannot be removed radically with the preservation of the peritoneal-covered distal bowel is best treated by abdominal exploration, permanent abdominal colostomy and a Kraske removal of all of the rectum at a period one week later—a two stage operation Cancer of the lower sigmoid extending nearly to the rectosigmoid is well treated by the Mikulicz method, separation of the mesentery and elevation of the diseased loop through the exploratory incision to a position above the abdomen

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Medical Sciences, Philadelphia

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1 *Comparative Value of Methods of Treating Tetanus C. L. Gibson New York—p 781
2 *Pathologic Changes in Sympathetic System in Goiter L. B Wilson, Rochester, Minn—p 799
3 *Etiology of Pellagra Consideration of Vitamin Deficiency E. J Wood Wilmington N C—p 813
4 Salvarsan in Treatment of Double Infections, Tuberculosis and Syphilis W B Potter, New York—p 823
5 *Clinical Investigations on Intestinal Autointoxication Especially as Regards Question of Specificity of Toxin T R Brown Baltimore—p 845
6 Stock Brainedness Causative Factor in So Called 'Crossed Aphasias J Kennedy, France—p 849
7 Circumscribed Cysts of Leptomeninges Report of Successful Operative Case J M Hanes and A M Willis, Richmond Va.—p 859
8 Treatment of Fracture of Spine W Sharpe New York—p 863
9 *Etiology and Prevention of Tuberculosis from Sociologic Points of View W C White Pittsburgh—p 880
10 Relation of Tuberculosis of Bronchial Lymph Nodes to Diagnosis and Treatment of Tuberculosis of Lungs M E Lapham, Highlands N C—p 887
11 Case of Diabetes Insipidus with Peculiar Necropsy Finding in Posterior Lobe of Pituitary Body J P Weber and H Schmidt London—p 892

1 **Treatment of Tetanus**—Gibson's personal experience in the treatment of tetanus is limited to eight cases, three patients died while five survived Of these the first two fatal cases did not have the benefit of the more modern or radical methods, whereas the last six are characterized by having received antitoxin intraspinally Of these six patients so treated since 1907 only one died, a mortality of 17 per cent Gibson advises that antitoxin treatment be begun immediately on suspicion of tetanus developing rather than waiting for the classical symptoms It should be given first into the wound or region of the wound, say 1,500 units, intraspinally, without an anesthetic, unless the treatment of the wound calls for the administration of a general anesthetic, 5,000 to 20,000 units In the course of the first twenty-four hours, in addition to the above, 10,000 to 20,000 units should be administered intravenously in divided doses, say two or three Antitoxin intravenously from 5,000 to 15,000 units should be given the next day no matter whether the symptoms remit or increase On the third day if, notwithstanding the treatment, the patient's symptoms continue very severe or appear worse, the intraspinal treatment should be repeated If after this treatment the patient holds his own or improves the intraspinal injection need not be repeated but the daily injection of antitoxin intravenously should be given until obvious remission or cure results One of Gibson's patients received a total of 169,000 units

2 and 3 Abstracted in The Journal, June 17, 1916, pp 2031 and 2032

4 **Salvarsan in Tuberculosis and Syphilis**—A review of the literature leads Potter to say that the prompt employment of salvarsan or neosalvarsan is indicated in latent, chronic and moderately active tuberculosis, (*a*) as soon as the nature of an added infection is diagnosed *with reasonable probability* to be syphilis, (*b*) whenever the history, signs, or symptoms strongly suggest a *previous syphilitic infection, particularly* if such a patient is not improving on the usually successful hygienic and climatic treatment for tuberculosis, but (*c*) active tuberculosis, acute tuberculosis and diffuse miliary tuberculosis are usually definite contraindications to the use of these new arsenic preparations, although in both the first two mentioned groups there will be found many syphilitic patients on whom a small dose of salvarsan may well be tried and, unless followed by untoward effects, cautiously repeated in gradually increasing doses When tuberculosis infects or becomes active in a patient with secondary, tertiary or even latent syphilis, the careful employment of one of these drugs is also indicated The more active the tuberculosis, the smaller should be the initial dose, the slower its increase, the less frequent the interval, and the greater care and watch-

fulness required Tuberculin like focal reactions may follow their administration should be carefully watched for and if present the location intensity and character will frequently guide in the selection of the next appropriate dose or interval

5 **Intestinal Autointoxication**—The peculiarity of toxin or bacteria in certain cases of so called intestinal toxemia or bacteremia was studied by Brown in three cases of chronic eczema and urticaria one of pruritus two of so called bilious headache and one of choroiditis This study suggested that in the intestine certain substances are produced which in some instances are possessed of specific action associated with a hypersensitiveness to certain proteins not in themselves toxic but possibly capable of producing a reaction because of an acquired hypersensibility and that therapeutically a marked improvement in symptoms and even a complete cure may be brought about by the elimination of these substances from the dietary It is also suggested to Brown by a study of these cases that by giving these foods in gradually increasing amounts a marked increase in resistance may be produced That in certain cases at least the symptoms are better explained on the basis of a bacterial infection of intestinal origin rather than on that of a toxemia and that in various cutaneous lesions, testing the cutaneous sensibility by intradermal injection of various proteins is of real value in determining whether or not the condition may be due to certain toxic bases of intestinal origin derived from the decomposition of certain protein foods These reactions are apparently specific in character and therefore these tests of cutaneous hypersensitiveness to various proteins probably cannot be used as criteria of other conditions best interpreted as protein intoxications with manifestations elsewhere than in the skin

8 **Treatment of Fracture of Spine**—In every case of fracture of the spine with damage to the cord excepting only complete obliteration of the bony canal Sharpe says an early laminectomy is urgently indicated to relieve the cord of the damaging effects of bone pressure hemorrhage and edema and to give the nerve tissue the best possible chance for repair

9 **Etiology and Prevention of Tuberculosis**—For each 100 000 population White wants a hospital of 200 beds a dispensary and an open air school There should be fifteen nurses, of whom five are visiting social service nurses and four or five physicians Such an equipment might easily expand and include all public activities child welfare pneumonia, syphilis and other health and public welfare problems The expense should be borne as the educational expense is borne and demand made mandatory by state law Large centers of population would be looked on as but the multiplication of units of 100 000 and the equipment would be multiplied accordingly Each unit would be self-governing but centralized in some central governing board which would establish the uniformity of the work and the prevention of overlapping

11 **Diabetes Insipidus and Pituitary Body**—A tuberculous man suddenly developed diabetes insipidus about two years before his death which was due to pulmonary and laryngeal tuberculosis At the necropsy a peculiar change in the posterior lobe of the pituitary body was found The pituitary fossa was not much if at all enlarged but the posterior lobe (pars nervosa) was relatively enlarged in proportion to the anterior lobe (pars glandularis), in fact, almost completely enclosed the anterior lobe, and was of a yellowish-brownish color, the color appearing to spread right into the posterior wall of the pituitary fossa The substance of the anterior lobe presented the normal glandular structure, but the posterior lobe contained large clumps of large granular cells with small nuclei, which stain deeply with hematoxylin Their cytoplasm has a granular appearance and many of them take on the sudan III coloration well In others of these cells, which stain less well with sudan III the cytoplasm appears to be full of minute crystals, doubtless fatty acid crystals of some kind, and probably it was a transformation of the lipoid droplets into fatty acid crystals that caused these cells to take on the sudan III stain relatively badly Weber and Schmidt think that these cells, which are possibly [illegible] origin may be regarded as one kind of "compound granular cells" (*Kornchenzellen*), the presence of which in considerable numbers forms a feature in various [illegible] conditions of the central nervous system Doubtless the lipoid containing cells in question gave the posterior lobe [illegible] the pituitary body in the present case its [illegible] yellowish brownish pigmentation

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1 Psychopathic Clinics in Schools J T MacCurdy New York —p [illegible]
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[illegible] Social and Economic Factors to Mental Hygiene C [illegible] Baltimore —p 1276
[illegible] Mental Disorders A J Rosanoff Kings Park [illegible]
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[illegible] Diagnosis and Clinical Characteristics of Gout J H Pratt, Boston [illegible]
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30 Correlation Between Systolic Blood Pressure and Reflex Vasoconstriction of Skin (Anemic Dermography) E A Tracy Boston —p 15
31 Report of Dietary Study of St Paul s School, Concord, New Hampshire I C Gephart New York —p 17
32 Adenomyoma of Rectovaginal Septum Report of Case F S Kellogg Boston —p 22

22 **Diagnosis and Clinical Characteristics of Gout**—One should always be suspicious says Pratt, that an attack of acute febrile inflammation of the joints occurring after the age of 35 in a person who has never had a previous attack of rheumatic fever is not rheumatism, but gout Acute endocarditis which is such a common complication of rheumatic fever does not occur in gout Another aid to differential diagnosis is the frequent association of gout and chronic interstitial nephritis, and the rarity of acute rheumatism and chronic Bright's disease in the same person Some of the cases of polyarticular gout Pratt has studied have closely simulated rheumatism In one case the correct diagnosis was not made by the eight or ten physicians who had treated the patient during the twenty-seven years that he had suffered from recurrent attacks of gout All had regarded the disease as rheumatic fever Pratt did not feel sure of the diagnosis until he saw the swelling on his elbow, which presented the typical picture of a chronic gouty olecranon bursitis The prompt relief from pain produced by colchicum in gout *is so striking that many have asserted* that this drug is a specific in gout It is certainly an aid in diagnosis as colchicum does not have such a marked effect in relieving the pain in acute rheumatism or in other con*ditions which may be confounded with gout* Salicylates rarely have any marked effect in controlling the pain of acute gout The relief from the severe pain of gout by atophan is even more striking than that produced by colchicum Its value in diagnosis is probably less as it often

is of considerable aid in checking the pains of nongouty arthritis

23 **Anaphylactic Action of Grains on Respiratory Tract**—Turnbull demonstrates the cutaneous reaction produced by proteins of wheat, barley, oats, corn and rice, and the anaphylactic action of the proteins of these grains, especially wheat, on the respiratory tract He has taken wheat as a standard, on account of its frequent and common use in daily diet He has obtained reactions to wheat in 100 cases A series of cases giving wheat reactions were tested with yeast, in no case was the reaction obtained One would thus form the conclusion that the yeast which enters in the making of bread has no anaphylactic action A series of pollenosis cases showed skin reactions to grain as follows wheat 100 per cent, barley 66 per cent, oats 64 per cent, rice 82 per cent, corn 90 per cent On the other hand, not all grain cases showed skin reactions to pollen of trees and plants Many pollenosis patients who avoided bread and boiled cereals, and used as substitutes those high, dry heated prepared cereals, to which they were not sensitive, found their symptoms diminished Pollenosis cases were desensitized in less time when eating these prepared cereals to which they were not sensitive

28 **Studies of Stomach in Syphilis**—In a group of 600 cases of syphilis with strongly positive Wassermann reactions were found forty-four with prominent stomach symptoms, after excluding patients with hepatic cirrhosis, gumma of liver, nephritis and tabes In thirty-five cases no definite lesion of the stomach was proved, in nine actual syphilitic or coincident lesions were found (ulcer, gumma or cancer) Two cases were proved cancer at necropsy five patients had ulcer, syphilitic or coincident, two had syphilitic induration or gumma The results of treatment are usually prompt and striking, the majority improve, even patients with severe complications like stenosis, perforation and hemorrhage A good portion are cured, but a small group do badly in spite of thorough treatment Gummas and induration melt away, but scar tissue does not dissolve and some deformity usually persists in the cases with gastric lesions Gastric secretion may remain absent after symptoms have disappeared In the thirty-seven cases without definite stomach lesion sixteen (43 per cent.) are well, eighteen (48 per cent) improved and three (9 per cent) no better In seven cases with stomach lesions (omitting the two cancer cases) three (43 per cent) are well, and four (57 per cent) greatly improved

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35 Encephalocele Report of Case A Peskind Cleveland —p 700
36 Trauma as Factor in Cause of Hydronephrosis F C Herrick Cleveland —p 704

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39 Spirocheta Morsus Muris, N Sp , Cause of Rat Bite Fever K Futaki I Takaki T Taniguchi and S Osumi Tokyo Japan —p 33
40 Experimental Rat Bite Fever K Ishiwara, T Ohtawara and K Tamura Tokyo, Japan —p 45
41 *Action of Digitalis in Pneumonia A E Cohn and R A Jamieson New York —p 65
42 *Control of Strychnin Convulsions by Intraspinal Injections of Magnesium Sulphate E C Cutler and B H Alton, Boston —p 83
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*Production of Arteriosclerosis and Glomerulonephritis in Rabbit by Intravenous Injections of Diphtheria Toxin C H Bailey San Francisco —p 109
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mental Studies on Relation of Pituitary Body to Renal Function K Motzfeldt, Boston —p 153
hagocytic Power of Connective Tissue Cells F S Jones and P Rous, New York —p 189

37 **Venous Pulse in Auricular Fibrillation**—The systolic and diastolic waves of the venous pulse of twenty-five clinical cases of auricular fibrillation, recorded by photographic methods, were studied by Niles and Wiggers Six types of systolic waves were found (1) an intensified impact wave, the most common and often the only characteristic feature, indicating vigorous ventricular action, (2) a peaked impact followed by a rapid systolic drop due to light pressure of the tambour, (3) the intra-auricular type of systolic variation, so-called from its resemblance to intra-auricular pressure curves found in animals, occurring in clinical cases only when ventricular systole is weak, (4) double systolic waves, attributed to a systolic tug of the ventricle on the auricles and large veins, (5) a systolic impact followed by a stasis wave, present when intravenous pressure is high, (6) a regurgitation wave composed of a steep rise continued into a systolic plateau with murmur vibrations superimposed The study showed (1) that tricuspid regurgitation, as indicated by the presence of regurgitation waves, is a rare accompaniment of auricular fibrillation, and (2) that the contrary opinion, arrived at by the frequent presence in polygraph tracings of ventricular types of waves, is due to the fact that the contour of intensified impact waves is distorted by polygraph levers so that they simulate regurgitation waves Recurrent diastolic waves were frequently present in the records Their relative size depended, to a considerable extent, on the pressure of the tambour There was no constant relation to similar waves in the recorded electrocardiogram, nor is it proved that they are indicative of a coarse type of fibrillation or an associated flutter

38 **Diastolic Waves of Venous Pulse**—The conviction has grown that finer and coarser types of auricular movement may be recognized by the amplitude of the diastolic waves of the electrocardiogram and venous pulse The investigation into the cause of these waves made by Wiggers and Niles has shown that this is not possible The large recurrent waves of the venous pulse, which may with more reason be regarded as related to the size of the auricular mechanical contractions on theoretical grounds, are also shown to be without differential value

41 **Action of Digitalis in Pneumonia**—In a series of 105 cases of pneumonia studied by Cohn and Jamieson they found that digitalis given by the mouth has an action on the heart because changes occurred in the auriculoventricular conduction time and in form of the T wave of the electrocardiogram just as they do in the nonfebrile heart This conclusion is strengthened by finding that the pulse rate in fibrillating and fluttering cases fell in the presence of fever, exactly as it does in nonfebrile cases The dose and the time required to produce these effects are given and are the same as in the nonfebrile cases The authors conclude that digitalis act during the febrile period of pneumonia It produces a beneficial possibly a life saving effect in cases of auricular irregularity (fibrillation and flutter)

42 **Control of Strychnin Convulsions**—The results obtain by Cutler and Alton in a human case and in animal exper ments lead them to believe that magnesium sulphate ma of use in controlling cases of poisoning by strychnin Th amount of magnesium sulphate to be used should follow t advice of Meltzer in tetanus cases, intraspinally 1 c c of 25 per cent solution to each 20 pounds of body weight adults, and one half the dose in young children Sho this not control the convulsions, a small amount of ether m be used In order to hasten the excretion of strychnin, - to 300 c c of salt solution should be given intravenously the event of the return of the convulsions, the intraspinal d may be repeated, always taking precautions to keep the h elevated Meltzer's apparatus for intrapharyngeal insuffla and a 2 5 per cent solution of calcium chlorid should alw be on hand in case of respiratory failure following an o dose of the magnesium salts

44 **Arteriosclerosis and Glomerulonephritis**—Diphth toxin, given in large doses intravenously, Bailey f produces in the kidneys of the rabbit a pronounced vasc and parenchymatous degeneration The former consists swelling and desquamation of the endothelial cells of

arterioles and small veins with the formation of fibrinous thrombi, a necrosis and thrombosis of the capillaries of the tufts with hemorrhage and the formation of fibrinous and hyaline masses, and in some of the affected glomeruli considerable collections of polymorphonuclear leukocytes

45 **Extirpation of Thymus in Guinea-Pig**—Extirpation of the thymus in the guinea pig produced no changes in Park s experiments because accessory lobes of thymus derived from the third pharyngeal pouch occurring in close association with the parathyroids from the third pouch were found in serial section of the cervical tissues of eleven out of fourteen guinea pigs and the author thinks that they probably would have been found in all fourteen but for a technical error The discovery of these accessory lobes makes it certain that the guinea pig is unsuitable material for complete thymectomy and probably complete extirpation of the thymus in this animal is rarely, if ever accomplished

46 **Pituitary Body and Renal Function**—Extracts of the pars intermedia and posterior lobe of the hypophysis, given by the mouth subcutaneously, or intravenously Motzfeldt says are able definitely to check artificially induced polyuria Extracts of the anterior lobe show a similar effect but only to a slight degree This antidiuretic effect is constant and is independent of (*a*) changes in blood pressure, (*b*) intestinal absorption, and (*c*) the vagi The effect is apparently prevented or delayed by division of the splanchnics and is diminished by division of the renal nerves near the hilus These facts tend to suggest that the antidiuretic action exerted by pituitary extracts on rabbits is caused by stimulation of the sympathetic nervous system and that the renal vasomotor system in this respect is of chief importance Clinically these conceptions bring the polyurias related to disorders of the nervous system and the polyurias of pituitary origin in closer contact

47 **Connective Tissue Cells**—By the tryptic digestion of cultures in vitro of avian and mammalian connective tissue, suspensions of individual, living cells have been obtained Their ability to phagocyte carmin and bacteria has been tested The great majority of them fail to take up either but a few large cells are able to do so They will ingest bacteria only when serum is present, that is, they require the interaction of opsonins There is good reason to suppose that the phagocyte cells are endothelial in nature Should they prove to be fibroblasts, like the other elements present the fact will remain that the phagocytic power of fibroblasts is practically negligible Their failure to ingest foreign matter in vivo is to be laid not to the obstacles offered by the solidity of the tissue they compose, but to an inherent lack of ability on their part The phagocytosis of blood pigment, bacteria etc, which takes place in granulation tissue in vivo is probably carried on wholly by endothelial cells and wandering cells

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48 Comparison of Methods for Disinfecting Swimming Pools W A Manheimer New York—p 1
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51 Numeric Relationship of Infection to Chemotherapy of Experimental Trypanosomiasis J A Kolmer J F Schamberg and G D Raiziss Philadelphia—p 35
52 *Studies of Beta Hemolytic Streptococcus Septic Sore Throat (Smith and Brown) W G Smillie Boston—p 45
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55 Small Contact Epidemic of Typhoid M F Boyd Iowa City Iowa—p 109
56 *Etiology of Acute Epidemic Poliomyelitis G Mathers Chicago—p 113

52 **Beta Hemolytic Streptococcus**—The throats of individuals who have had tonsillitis, Smillie says may harbor the beta hemolytic streptococcus for three or more months after acute symptoms of the disease have subsided This streptococcus is found in large numbers in the throats of a certain proportion of patients with sporadic tonsillitis (five of twenty studied) Epidemic tonsillitis, or septic sore throat, is therefore, not a disease due wholly to the drinking of contaminated milk The disease may exist not only in the epidemic but in the sporadic form Tonsillitis, epidemic and sporadic, due to the streptococcus of the beta hemolytic type, may be severe or moderate or even mild The beta streptococcus is frequently found in the throats of patients ill with acute scarlet fever and may remain for months in the purulent discharges in the cases complicated by otitis media, etc These facts explain how the discharges from a scarlet fever patient may contaminate a milk supply and produce a milk-borne epidemic, not of scarlet fever, but of septic sore throat

56 **Etiology of Acute Epidemic Poliomyelitis**—In a bacteriologic examination of fresh material from ten cases of acute poliomyelitis a peculiar polymorphic streptococcus-like organism has been isolated in nine instances in seven of which the growth has been pure Similar organisms have been demonstrated microscopically in the tissues of the central nervous system of these patients Cultures of this coccus injected into rabbits have produced paralysis of various groups of muscles and characteristic lesions in the central nervous system consisting of hyperemia and edema of the tissues with hemorrhages round cell perivascular infiltration and neurophagocytosis in the spinal cord especially in the gray substance similar in every detail to the changes considered characteristic of acute poliomyelitis in man This micrococcus has been recovered from the lesions in the inoculated rabbits by both cultural and microscopic methods

The artificial cultivation of the poliomyelitis coccus in an ascites fluid tissue medium under anaerobic conditions causes changes in the medium which cannot be differentiated from those previously described for cultures of the so-called virus of poliomyelitis Morphologically also, this bacterium when grown on the same mediums is similar to the virus, and in stained smears it appears in minute gram positive coccus-like bodies arranged in pairs groups and chains These minute forms disappear when the organism is cultivated in other mediums under aerobic conditions The morphologic, cultural and pathogenic characters of the poliomyelitis coccus thus far determined indicate that it is an important factor in the disease

Journal of Pharmacology and Experimental Therapeutics, Baltimore

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59 Action of Strychnin on Certain Invertebrates A R Moore Woods Hole Mass—p 167
60 Pharmacology of Uterus Masculinus J A Waddell Charlottesville Va—p 171
61 Pharmacology of Prostate J A Waddell Charlottesville Va—p 179
62 *Effects of Drugs on Ileocolic Sphincter M Kuróda London—p 187
63 *Pharmacology of Ureter Action of Opium Alkaloids D I Macht Baltimore—p 197

62 **Effects of Drugs on Ileocolic Sphincter**—The effects of atropin, pilocarpin nicotin and cocain on the sphincter are very similar to those on the intestine in general Yet the innervation of the sphincter is entirely different from that of the intestine in which the vagus is the augmentor, the splanchnic the depressor nerve while in the sphincter the splanchnic is augmentor and no inhibitory nerve has been shown to exist The correspondence in the action of these drugs on parts which are so different, suggests strongly that the seat of their activity is not the nervous apparatus, but the muscular And this is strengthened by the fact that epinephrin has an action on the sphincter opposite from in the intestine in general, thus changing along with character of the nervous activity

63 **Pharmacology of Ureter**—Morphin and its alli alkaloids increase the contractions and produce a grea

is of considerable aid in checking the pains of nongouty arthritis

23 **Anaphylactic Action of Grains on Respiratory Tract**—Turnbull demonstrates the cutaneous reaction produced by proteins of wheat, barley, oats, corn and rice, and the anaphylactic action of the proteins of these grains, especially wheat, on the respiratory tract He has taken wheat as a standard, on account of its frequent and common use in daily diet He has obtained reactions to wheat in 100 cases A series of cases giving wheat reactions were tested with yeast, in no case was the reaction obtained One would thus form the conclusion that the yeast which enters in the making of bread has no anaphylactic action A series of pollenosis cases showed skin reactions to grain as follows wheat 100 per cent barley 66 per cent, oats 64 per cent, rice 82 per cent, corn 90 per cent On the other hand, not all grain cases showed skin reactions to pollen of trees and plants Many pollenosis patients who avoided bread and boiled cereals, and used as substitutes those high, dry heated prepared cereals, to which they were not sensitive, found their symptoms diminished Pollenosis cases were desensitized in less time when eating these prepared cereals to which they were not sensitive

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41 *Action of Digitalis in Pneumonia A E Cohn and R A Jameson New York —p 65
42 *Control of Strychnin Convulsions by Intraspinal Injections of Magnesium Sulphate E C Cutler and B H Alton Boston —p 83
43 Metabolism of Cells in Vitro Toxicity of a Amino Acids for Embryonic Chicken Cells M T Burrows and C A Neymann, Baltimore —p 93
44 *Production of Arteriosclerosis and Glomerulonephritis in Rabbit by Intravenous Injections of Diphtheria Toxin C H Bailey San Francisco —p 109
45 *Extirpation of Thymus in Guinea Pig E A Park, Baltimore —p 129
46 *Experimental Studies on Relation of Pituitary Body to Renal Function K Motzfeldt Boston —p 153
47 **Phagocytic Power of Connective Tissue Cells F S Jones* and P Rous New York —p 189

37 **Venous Pulse in Auricular Fibrillation**—The systolic and diastolic waves of the venous pulse of twenty-five clinical cases of auricular fibrillation, recorded by photographic methods, were studied by Niles and Wiggers Six types of systolic waves were found (1) an intensified impact wave, the most common and often the only characteristic feature, indicating vigorous ventricular action, (2) a peaked impact followed by a rapid systolic drop due to light pressure of the tambour, (3) the intra-auricular type of systolic variation, so-called from its resemblance to intra-auricular pressure curves found in animals, occurring in clinical cases only when ventricular systole is weak, (4) double systolic waves, attributed to a systolic tug of the ventricle on the auricles and large veins, (5) a systolic impact followed by a stasis wave, present when intravenous pressure is high, (6) a regurgitation wave composed of a steep rise continued into a systolic plateau with murmur vibrations superimposed The study showed (1) that tricuspid regurgitation, as indicated by the presence of regurgitation waves, is a rare accompaniment of auricular fibrillation, and (2) that the contrary opinion, arrived at by the frequent presence in polygraph tracings of ventricular types of waves, is due to the fact that the contour of intensified impact waves is distorted by polygraph levers so that they simulate regurgitation waves Recurrent diastolic waves were frequently present in the records Their relative size depended, to a considerable extent, on the pressure of the tambour There was no constant relation to similar waves in the recorded electrocardiogram, nor is it proved that they are indicative of a coarse type of fibrillation or an associated flutter

38 **Diastolic Waves of Venous Pulse**—The conviction has grown that finer and coarser types of auricular movement may be recognized by the amplitude of the diastolic waves of the electrocardiogram and venous pulse The investigation into the cause of these waves made by Wiggers and Niles has shown that this is not possible The large recurrent waves of the venous pulse, which may with more reason be regarded as related to the size of the auricular mechanical contractions on theoretical grounds, are also shown to be without differential value

41 **Action of Digitalis in Pneumonia**—In a series of 105 cases of pneumonia studied by Cohn and Jameson they found that digitalis given by the mouth has an action on the heart, because changes occurred in the auriculoventricular conduction time and in form of the T wave of the electrocardiogram just as they do in the nonfebrile heart This conclusion is strengthened by finding that the pulse rate in fibrillating and fluttering cases fell in the presence of fever, exactly as it does in nonfebrile cases The dose and the time required to produce these effects are given and are the same as in the nonfebrile cases The authors conclude that digitalis acts during the febrile period of pneumonia It produces a beneficial, possibly a life saving effect in cases of auricular irregularity (fibrillation and flutter)

42 **Control of Strychnin Convulsions**—The results obtained by Cutler and Alton in a human case and in animal experiments lead them to believe that magnesium sulphate may be of use in controlling cases of poisoning by strychnin The amount of magnesium sulphate to be used should follow the advice of Meltzer in tetanus cases, intraspinally 1 c c of a 25 per cent solution to each 20 pounds of body weight in adults, and one half the dose in young children Should this not control the convulsions, a small amount of ether may be used In order to hasten the excretion of strychnin, 200 to 300 c c of salt solution should be given intravenously In the event of the return of the convulsions, the intraspinal dose may be repeated, always taking precautions to keep the head elevated Meltzer's apparatus for intrapharyngeal insufflation and a 2 5 per cent solution of calcium chlorid should always be on hand in case of respiratory failure following an overdose of the magnesium salts

44 **Arteriosclerosis and Glomerulonephritis**—Diphtheria toxin, given in large doses intravenously, Bailey found produces in the kidneys of the rabbit a pronounced vascular and parenchymatous degeneration The former consists of a swelling and desquamation of the endothelial cells of the

arterioles and small veins with the formation of fibrinous thrombi a necrosis and thrombosis of the capillaries of the tufts with hemorrhage and the formation of fibrinous and hyaline masses, and in some of the affected glomeruli, considerable collections of polymorphonuclear leukocytes

45 **Extirpation of Thymus in Guinea-Pig**—Extirpation of the thymus in the guinea-pig produced no changes in Park's experiments because accessory lobes of thymus derived from the third pharyngeal pouch, occurring in close association with the parathyroids from the third pouch, were found in serial section of the cervical tissues of eleven out of fourteen guinea pigs and the author thinks that they probably would have been found in all fourteen but for a technical error The discovery of these accessory lobes makes it certain that the guinea pig is unsuitable material for complete thymectomy and probably complete extirpation of the thymus in this animal is rarely, if ever accomplished

46 **Pituitary Body and Renal Function**—Extracts of the pars intermedia and posterior lobe of the hypophysis, given by the mouth subcutaneously, or intravenously Motzfeldt says, are able definitely to check artificially induced polyuria Extracts of the anterior lobe show a similar effect, but only to a slight degree This antidiuretic effect is constant, and is independent of (*a*) changes in blood pressure, (*b*) intestinal absorption and (*c*) the vagi The effect is apparently prevented or delayed by division of the splanchnics, and is diminished by division of the renal nerves near the hilus These facts tend to suggest that the antidiuretic action exerted by pituitary extracts on rabbits is caused by stimulation of the sympathetic nervous system and that the renal vasomotor system in this respect is of chief importance Clinically these conceptions bring the polyurias related to disorders of the nervous system and the polyurias of pituitary origin in closer contact

47 **Connective Tissue Cells**—By the tryptic digestion of cultures in vitro of avian and mammalian connective tissue, suspensions of individual, living cells have been obtained Their ability to phagocyte carmin and bacteria has been tested The great majority of them fail to take up either, but a few large cells are able to do so They will ingest bacteria only when serum is present, that is, they require the interaction of opsonins There is good reason to suppose that the phagocyte cells are endothelial in nature Should they prove to be fibroblasts, like the other elements present, the fact will remain that the phagocytic power of fibroblasts is practically negligible Their failure to ingest foreign matter in vivo is to be laid not to the obstacles offered by the solidity of the tissue they compose, but to an inherent lack of ability on their part The phagocytosis of blood pigment, bacteria, etc, which takes place in granulation tissue in vivo is probably carried on wholly by endothelial cells and wandering cells

Journal of Infectious Diseases, Chicago

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48 Comparison of Methods for Disinfecting Swimming Pools W A Manheimer New York—p 1
49 Various Methods for Determining Trypanocidal Activity of Substances in Vitro and Their Relation to Chemotherapy of Experimental Trypanosomiasis J A Kolmer, J F Schamberg and G D Raiziss, Philadelphia—p 10
50 Adaptation of Parasitic Micro-Organisms to Lowered Oxygen Tension W B Wherry and W W Oliver, Cincinnati—p 28
51 Numeric Relationship of Infection to Chemotherapy of Experimental Trypanosomiasis J A Kolmer J F Schamberg and G D Raiziss, Philadelphia—p 35
52 *Studies of Beta Hemolytic Streptococcus Septic Sore Throat (Smith and Brown) W G Smillie, Boston—p 45
53 Bacteriology of Pemphigus Neonatorum F H Falls, Chicago—p 86
54 Studies on Immunity in Typhus Exanthematicus with Reference to Antibodies in Man and Guinea Pig Demonstrable by Dale Method B S Denzer and P K Olitsky New York—p 99
55 Small Contact Epidemic of Typhoid M F Boyd Iowa City, Iowa—p 109
56 *Etiology of Acute Epidemic Poliomyelitis G Mathers, Chicago—p 113

52 **Beta Hemolytic Streptococcus**—The throats of individuals who have had tonsillitis, Smillie says may harbor the beta hemolytic streptococcus for three or more months after acute symptoms of the disease have subsided This streptococcus is found in large numbers in the throats of a certain proportion of patients with sporadic tonsillitis (five of twenty studied) Epidemic tonsillitis, or septic sore throat, is therefore, not a disease due wholly to the drinking of contaminated milk The disease may exist not only in the epidemic but in the sporadic form Tonsillitis, epidemic and sporadic due to the streptococcus of the beta hemolytic type, may be severe or moderate, or even mild The beta streptococcus is frequently found in the throats of patients ill with acute scarlet fever and may remain for months in the purulent discharges in the cases complicated by otitis media, etc These facts explain how the discharges from a scarlet fever patient may contaminate a milk supply and produce a milk-borne epidemic, not of scarlet fever but of septic sore throat

56 **Etiology of Acute Epidemic Poliomyelitis**—In a bacteriologic examination of fresh material from ten cases of acute poliomyelitis a peculiar polymorphic streptococcus-like organism has been isolated in nine instances in seven of which the growth has been pure Similar organisms have been demonstrated microscopically in the tissues of the central nervous system of these patients Cultures of this coccus injected into rabbits have produced paralysis of various groups of muscles and characteristic lesions in the central nervous system consisting of hyperemia and edema of the tissues with hemorrhages, round cell perivascular infiltration and neurophagocytosis in the spinal cord, especially in the gray substance similar in every detail to the changes considered characteristic of acute poliomyelitis in man This micrococcus has been recovered from the lesions in the inoculated rabbits by both cultural and microscopic methods

The artificial cultivation of the poliomyelitis coccus in an ascites fluid tissue medium under anaerobic conditions causes changes in the medium which cannot be differentiated from those previously described for cultures of the so-called virus of poliomyelitis Morphologically, also, this bacterium when grown on the same mediums is similar to the virus, and in stained smears it appears in minute gram-positive coccus-like bodies arranged in pairs groups and chains These minute forms disappear when the organism is cultivated in other mediums under aerobic conditions The morphologic, cultural and pathogenic characters of the poliomyelitis coccus thus far determined indicate that it is an important factor in the disease

Journal of Pharmacology and Experimental Therapeutics, Baltimore

December 1916 IX No 3

57 Role of Liver in Acute Polycythemia Effect of Shutting Off Arterial Blood Supply to Liver Reaction of Normal Animal to Epinephrin and Removal of Liver from Circulation P D Lamson, Baltimore—p 129
58 Can Epinephrin Acquire Antineuritic Properties? C Voegtlin and and G F White, Washington, D C—p 155
59 Action of Strychnin on Certain Invertebrates A R Moore Woods Hole Mass—p 167
60 Pharmacology of Uterus Masculinus J A Waddell Charlottesville Va—p 171
61 Pharmacology of Prostate J A Waddell, Charlottesville, Va—p 179
62 *Effects of Drugs on Ileocolic Sphincter M Kuróda London—p 187
63 *Pharmacology of Ureter Action of Opium Alkaloids D I Macht Baltimore—p 197

62 **Effects of Drugs on Ileocolic Sphincter**—The effects of atropin, pilocarpin, nicotin and cocain on the sphincter are very similar to those on the intestine in general Yet the innervation of the sphincter is entirely different from that of the intestine, in which the vagus is the augmentor, the splanchnic the depressor nerve, while in the sphincter the splanchnic is augmentor and no inhibitory nerve has been shown to exist The correspondence in the action of these drugs on parts which are so different, suggests strongly that the seat of their activity is not the nervous apparatus, but the muscular And this is strengthened by the fact that epinephrin has an action on the sphincter opposite from that in the intestine in general, thus changing along with the character of the nervous activity

63 **Pharmacology of Ureter**—Morphin and its allied alkaloids increase the contractions and produce a greater

tonicity of the ureter Papaverin and its allied alkaloids produce a slowing or total inhibition of the contractions and a relaxation of the tonus In pantopium (total opium alkaloids) and other combinations, the effect of the benzyl-isoquinolin alkaloids predominates In spasmodic conditions of the ureter (renal colic), Macht says, the employment of papaverin or total opium alkaloids is more rational than that of morphin alone The slight toxicity of papaverin, its tonus lowering power, and its local analgesic properties suggest its local application in spasmodic conditions of the ureter

Kentucky Medical Journal, Bowling Green

January XV No 1

64 Comprehensive Plan for Cooperation of State Tuberculosis Commission with Existing Health Agencies W L Heizer, Bowling Green —p 5
65 Training Physicians for Social Health Work P E Blackerby, Erlanger —p 9
66 Prostatectomy Its Indications P H Stewart Paducah —p 12
67 Simple Modification of Milk for Baby D H McKinley Winchester —p 17
68 *Acute Bacterial Synovitis J G Sherrill, Louisville —p 21
69 Forceps Delivery H E Prather Hickman —p 24
70 Present Treatment of Puerperal Infection J B Lukins, Louisville —p 25
71 Lessons from Life of Physician Incognito—Appeal to Young Men J W Crenshaw Cadiz —p 34
72 *Significance of Abdominal Pain in Children J D Trawick, Louisville —p 37
73 Some of Duties We Owe to County Society W R Burr Auburn —p 40
74 Unacknowledged and Uncanceled Debt of Obligation of Public to Medical Profession G Cowan Danville —p 42

68 and 72 Abstracted in The Journal, Dec 2, 1916, pp 1692 and 1693

Maine Medical Association Journal, Portland

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75 Medical Cult Absurdity A P Leighton Jr, Portland —p 141
76 Some Medical Aspects of Naval Recruiting J H Harris Portland —p 149
77 Adenoids as Factor in Amblyopia C T Adams Trenton, N J —p 164

Medical Record, New York

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78 Sensitized Typhoid Bacteria (Typhoid Serobacterins) A L Garbat New York —p 1145
79 Diathermia in Treatment of Trifacial Neuralgia Report of Cases H F Wolf New York —p 1152
80 Employment of Persons in Arrested Stage of Tuberculosis J S Ford Wallingford Conn —p 1154
81 Hematuria and Pyuria S W Schapira New York and J Wittenberg Brooklyn —p 1156
82 Rhinal Premonstration of Tuberculosis J A Hagemann Pittsburgh —p 1157

Missouri State Medical Association Journal, St Louis

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83 Chronic Induration of Penis Report of Cases A E Hertzler, Kansas City —p 1
84 Relationship of Laceration of Mouth of Uterus to Cancer of Uterus R M Funkhouser St Louis —p 4
85 Nongonorrheal Type of Ophthalmia Neonatorum J H Thompson, Kansas City —p 7
86 Primary Acute Glaucoma H Bailey Springfield —p 8
87 Experimental Measurement of Bones of Foot as Aid to Better Diagnosis and More Rational Treatment B Belove, Kansas City —p 13
88 Result of Physical Examination of Five Hundred Young Men H T Price, St Louis —p 20
89 Case of Perinephritic Abscess with Spontaneous Recovery T M Paul, St Joseph —p 21
90 Development of Fecal Concretion in Stump Left After Ligating Appendix L A Todd, St Joseph —p 23
91 Indications and Methods for Removal of Faucial Tonsils W D Black, St Louis —p 24

Modern Hospital, St Louis

January VIII No 1

92 Complete Suburban Hospital—Muhlenberg F J Hubbard, Plainfield N J —p 1
93 Successful Medical Treatment in Chronic Alcoholism C B Towns New York —p 6
94 St Joseph s Hospital Kansas City Mo J D Griffith, Kansas City, Mo —p 10
95 Some Facts and Fallacies of Sterilization A, W Clark New Brunswick N J —p 13
96 United States Naval Hospital on Island of Guam L W Johnson U S Navy —p 16
97 Cost of Operating Motor Ambulance W Fawcett Washington D C —p 21
98 Story of New England County Hospital J M French, Milford Mass —p 26
99 Small Community Hospital—Equipment J A Hornsby, Chicago —p 29
100 Necropsies—Their Value Methods of Obtaining and Protection of Hospital M C Winternitz Baltimore —p 36
101 What the Intern Should Contribute to Team Work E H Beckman, Rochester Minn —p 43

New Mexico Medical Journal, Las Cruces

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102 Early Symptoms of Upper Abdominal Disease H A Black Pueblo Colo —p 66
103 Parotitis Secondary to Suppurative Appendicitis F W Noble Tucumcari —p 73
104 Country Surgeon J W Wroth Albuquerque —p 80

New York Medical Journal

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105 Dental Infections in Systemic Disorders S Tousey, New York —p 1269
106 Eczema in Children G W Crary, New York —p 1274
107 Infections of Bones and Joints P W Roberts, New York —p 1275
108 Diathermia H Wolf New York —p 1276
109 Eye Strain I Hartshorne New York —p 1279
110 New Method for Intraspinous Treatment of Neural Syphilis with Mercury M F Lautman Hot Springs Ark —p 1281
111 Fallacy of Fallacies About Tuberculosis A Robin Wilmington Del —p 1284
112 Role of Syphilis in Insane Negro L. Wender Washington D C —p 1286

Oklahoma State Medical Association Journal, Muskogee

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113 Intestinal Stasis V C Tisdal, Elk City —p 1
114 Varicose Veins Their Results and Treatment R M Howard, Oklahoma City —p 3
115 Abdominal Drainage from Anatomic Standpoint C von Wedel Jr Oklahoma City —p 7
116 Rachiocentesis L Riely Oklahoma City —p 10
117 Perforation in Typhoid L Long, Oklahoma City —p 12
118 Study of Teratology with Presentation of Specimen W W Wells Oklahoma City —p 16
119 Laryngeal Diphtheria H M Williams Wellston —p 20
120 Gonorrheal Ophthalmia R L Mitchell, Vinita —p 23

Ophthalmic Record, Chicago

January XXVI No 1

121 Clinical and Pathologic Study of Two Cases of Miliary Tubercles of Choroid R L Randolph and H C Schmeisser Baltimore —p 1
122 New Method of Treatment for Retinal Separation F H Verhoeff Boston —p 10
123 Bicylindric Refraction C F Prentice New York —p 14
124 Explosion of Snellen Eye in Orbit Report of Case W B Weidler New York —p 19
125 Treatment of Corneal Ulcers S G Dabney Louisville Ky —p 21
126 In Re Corneal Ulcers H B Young Burlington Iowa —p 25

Public Health Journal, Toronto

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127 Feeblemindedness H L Brittain —p 495
128 Attitude of Educator toward Feebleminded P Sandiford —p 496
129 Attitude of Neighborhood Worker M J Clarke —p 498
130 Problem of Feebleminded from Institutional Viewpoint L W Brooking —p 500
131 Psychiatric Clinic C M Hincks —p 502
132 General Considerations. C K Clarke —p 504
133 Care of Feebleminded F J Conboy —p 505

Rhode Island Medical Journal, Providence

January I No 1

134 Lateral Curvature of Spine (Scoliosis) F E Peckham, Providence —p 13
135 Initial Experiences in Office of State Pathologist H S Bernstein Providence —p 5
136 Pelvic Descent of Appendix into Pelvis W L Harris Providence —p 13

Vermont Medicine, Rutland

December 1916 I No 12

137 Treatment of Diabetes Mellitus J R Williams Rochester N Y —p 341
138 What Shall We Feed the Sick? C J Rumrill, Randolph —p 348

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Medical Journal, London

December 16, 1916, II, No 2920

1 Mechanical Treatment of Fractures Under War Conditions R Jones—p 829
2 How to Use Crutches to Prevent Primary Contraction Hagentorn—p 834
3 *Pseudotuberculoma Silicoticum of Lip C R Nitch—p 835
4 *Second Primary Growths in Remaining Breast After Amputation of Other for Carcinoma D Drew—p 836
5 *Organism Present in Blood of Patients Suffering from Trench Nephritis R L Thornley—p 836

3 **Pseudotuberculoma Silicoticum of Lip**—A man fell off his bicycle when riding along a dusty country road, cutting the mucous membrane on the buccal aspect of his lower lip Some road grit was ground into the wound Healing took place in about fourteen days The resulting scar was somewhat thickened, but underwent no further change until a swelling began to form in its center Four months later the submental glands became enlarged and tender The glandular enlargement combined with the deformity of the lip produced by the increasing size of the tumor, led the patient to consult his physician Palpation of the tumor through the skin conveyed an impression similar to that given by a preputial chancre A provisional diagnosis of an endothelioma or of a fibroma surrounding a foreign body was made The tumor, together with the mucous membrane covering it and a quarter of an inch of the surrounding tissues, was excised from the buccal aspect of the lip, and the submental glands were removed Healing was uneventful Microscopic examination showed that the lesion consisted of a congeries or a mosaic of giant celled systems and huge giant cells, hardly to be distinguished from those of tuberculosis, although no caseation was present No tubercle bacilli or other bacteria were discoverable in the lesion in microscopic sections In practically all the giant cells however, and elsewhere there were particles of silica, which stood brilliantly out when the sections were polarized That the material consisted chemically of silica was proved by its insolubility in boiling nitric acid

4 **Second Primary Growths in Remaining Breast After Amputation of Other for Carcinoma**—Drew says that in his experience it is extremely rare to find a second solitary growth developing in the remaining breast after the lapse of two or three years, the patient being in good health and careful examination failing to reveal any evidence of secondary deposits in any other region

5 **Organism Present in Blood of Patients Suffering from Trench Nephritis**—With one single exception, every one of twenty-seven cases of trench nephritis examined by Thornley has shown the presence of an identical coccus in the blood Examined under the highest powers, the organism is seen to be an extremely minute diplococcus with adjacent surfaces flattened against each other It is usually seen singly or in groups seldom in chains They are nonmotile have no capsules and do not stain It grows readily, on ordinary agar, as a fine growth not unlike *Micrococcus melitensis* It does not liquefy gelatin on which it grows readily It ferments glucose, lactose, mannite, sorbite and saccharose within forty-eight hours, but not dulcite There is no formation of gas in any of the sugars Agglutination tests performed against it with meningococcic and *M melitensis* antiserums were negative in a dilution of 1 in 10

Lancet, London

December 16 1916 II No 4868

6 Injuries of War A M Sheild—p 1003
7 Electric Treatment of Wounded W J Turrell—p 1005
8 Fraud and Skin Eruptions J Collie—p 1008
9 *Case of Meningococcal Infection without Involvement of Cerebrospinal System W M Elliott—p 1010
10 Method of Hydrogen Ion Concentration Differentiation of Typhoid and Paratyphoid Bacilli A and B S W Cole and H Onslow—p 1011
11 *Diffuse Myxochondroma of Long Bone M McIntyre—p 1013
12 Ocular Vertigo T E Harwood—p 1014
13 Case of Aneurysm at Termination of External Carotid Artery K F Bolt—p 1015
14 *Rare Congenital Malformation W F Stiell—p 1015

9 **Meningococcal Infection**—The case cited by Elliott presented the features of an acute febrile condition accompanied by a very definite exanthem, the acute symptoms ending by crisis on the sixth day of illness In reviewing the facts obtainable, Elliott is convinced that the patient had suffered from an infection by the meningococcus without involvement of the cerebrospinal system and that the case falls into the so-called septicemia class of cerebrospinal fever The patient had specific antibodies to the meningococcus in his serum Attempts were made to obtain the organism in culture from the nasopharynx, but they were unsuccessful

11 **Diffuse Myxochondroma of Long Bone**—A female, aged 65 years, for seven and a half years complained of slight discomfort in the upper part of the right thigh without swelling, so far as she was aware, till shortly before her admission to the hospital At that time there was a visible fullness of the upper third of the right thigh, which felt as if due to a hard nodular enlargement of the femur, in the neighborhood of the great trochanter Passive movements at the hip joint were not impaired, the temperature was normal the patient s past history was negative, there was no evident metastasis, and the general health was unaffected Her single complaint was the increasing discomfort, amounting at times to actual pain, in the upper part of the right thigh On the roentgenogram general enlargement of the upper third of the femur was evident, consisting of tissue less dense than the imperfect shell or case of compact bone It appeared to be a central sarcoma, causing expansion with thining of the compact bone for which the limb was disarticulated at the hip In commencing the operation an incision was first made into the tumor, when a hemorrhagic friable tissue escaped supporting the presumption that the condition being dealt with was as diagnosed

14 **Rare Congenital Malformation**—The condition is bilateral in Stiell s case The total length of the upper extremity from the tip of the coracoid process to the tip of the longest digit is 7 inches Muscular development is excellent The elbow joint itself is entirely absent, but this is compensated by an abnormally efficient range of movement at the shoulder joint, while the mobility at both the wrist and interscapulothoracic joints is quite pathologic The radius and the ulna are entirely absent and the carpus is represented solely by the unciform os magnum, trapezoid, and one quite abnormal bone, probably a glorified scaphoid The metacarpal bones of the thumb and index finger are absent, as also the corresponding digits to these bones The three existing digits are held in the semiflexed position chiefly by contraction of the flexor tendons There is no syndactylism The humerus is represented by a short stout bone about 4 inches in length which articulates with a very abnormal scapula at its upper end and directly with the freak carpus at its lower Notwithstanding the total absence of both the radius and ulna, there is a normal range of pronation and supination, provided apparently by an exaggerated rotatory movement of the head of the humerus in the glenoid fossa With the exception of the upper extremities the remainder of the skeleton is normal There is no trace of any mental impairment

Practitioner, London

December 1916 XCVII No 6

15 Venereal Diseases as We See Them Today J E R McDonagh—p 501
16 Keratodermia Blenorrhagica Report of Cases E G Little—p 531
17 Sanatorium Treatment of Industrial Patients I S Stewart—p 554
18 Placebo Protest and Plea S Noble—p 568
19 *Tendon Repair without Actual Suture W F Stiell—p 574
20 Case of Boric Acid Poisoning G C Maguire—p 580
21 *Sublingual Medication A P Murtz—p 582
22 *Pain Caused by Dilatation of Deep Veins of Thighs J R Keith—p 584

19 **Tendon Repair Without Actual Suture**—In following the treatment for accidental division of tendon without actual suture Stiell says it is essential that four important details should all be present at one and the same time 1 It is of the utmost importance that the injured finger should be maintained in a position of hyperextension for at least three

weeks 2 It is necessary that the actual skin cut should have fairly close approximation of its edges, or, at least, the laceration must not be too extensive to render good apposition possible by means of skin stitches only 3 It is inadvisable to employ any form of drainage whatever for two reasons first, because it tends to remove the very necessary and beneficial blood clot from between the ends of the divided tendon, and second, that it only provides one more possible entrance for micro-organisms 4 Absolute asepsis is essential, or at least asepsis as regards the tendon sheath itself If these four important points in the method of technic are strictly observed, and the tendon sheath remains aseptic, primary union will invariably occur between the divided ends of the tendon without any actual tendon suture whatever

21 **Sublingual Medication**—The sublingual method of medication is endorsed by Murtz, who has used it for twenty years He regards the sublingual space the place par excellence for the rapid transmission by absorption of crushed hypodermic tablets into the circulation

22 **Pain Caused by Dilatation of Deep Veins of Thighs**—A woman, 57 years of age, about two years ago, began to be troubled with pain and swelling in the thighs These symptoms gradually increased, being produced by walking or standing and relieved by lying down Always absent in the morning on rising, in about an hour afterward they invariably made their appearance On examination, no objective signs were found to indicate the pathology of the condition, but as speedy relief was afforded by the application of elastic support it was evident that the symptoms arose from dilatation of the deep veins of the thighs

Annales de Gynécologie et d'Obstétrique, Paris

1916 XLII No 2 pp 65 128

23 Welfare Work for Children in Paris District during the First Year of the War A Pinard—p 65
24 After the Laparotomy E Forgue—p 79 Commenced in No 1, p 1
25 Mechanism of Menstruation H Vignes—p 104 Commenced in No 1 p 25

No 4 pp 193 256

26 *Abortive Gangrene of the Uterus P Mauclaire—p 193
27 *Perforation of Uterus with Passage of Foreign Bodies into the Abdominal Cavity V B Beckman—p 206
28 *Obstetrics in France and in Germany (Puericulture Obstetricie française et obstetricie allemande) A Pinard—p 213 Commenced in No 3, p 129
29 Case of True Hermaphroditism C Walther—p 230

26 **Gangrene of the Uterus from Measures to Induce Abortion**—Mauclaire remarks that induced abortion is becoming so common that it is astonishing that serious complications are not more frequently observed as the surgical services are so invaded by patients with febrile postabortion complications He here describes with illustrations four already published cases of fatal gangrene from this cause, with necropsy A number of other cases are briefly mentioned, his conclusion being that operative measures offer the only chance for saving the patient, although the conditions are decidedly unfavorable, whether the gangrene is in the fundus or in the cervix

27 **Perforation of Uterus During Attempt to Induce Abortion**—Beckman warns that if the physician does not know the circumstances of the case, he may fail to recognize that a foreign body has penetrated through the uterine wall into the abdominal cavity It was a *laminaria* in one of the two cases described and a bougie in the other In this latter case the supposed pregnancy was nonexistent, he remarks that this is the forty-sixth case of the kind on record The prognosis depends in large measure on whether the woman confesses or conceals what she has been doing At the same time we must remember that women may insist that a foreign body has penetrated the uterus wall when this did not occur He has had such cases, suggestion and fear prompting the avowal The surgeon must not take literally all that the patient relates As a rule, the reverse circumstances prevail, the woman does not know what the midwife has done to her, or she dissembles It is sometimes possible to palpate the foreign body through the walls of the abdomen, the rectum or the vagina It may become encysted and feel like a tumor In the two cases reported there were no signs of peritonitis until the fourth or fifth day, beyond a few vague symptoms Beckman advises to leave the uterus if there are no signs of infection Vasten removed a bougie from the abdominal cavity at the third month of a pregnancy which progressed to term In one case on record the bougie was felt in the Douglas pouch four days after it had penetrated the wall of the six months' pregnant uterus, abortion followed twelve days later The sixteenth day after this the woman consented to a laparotomy The bougie then was found between the umbilicus and the costal arch

28 **Obstetrics in France and Germany**—This is mainly a historical sketch of the evolution of obstetrics in Europe and of the hygiene of gestation and of puericulture

Archives de Médecine des Enfants, Paris

October 1916 XIX No 10 pp 505 560

30 Antitoxin in Treatment and Prevention of Diphtheria and Rarity of Accidents Therefrom (Les accidents consecutifs aux reinjections de serum et les injections preventives de serum anti diphthérique) A Netter—p 505
31 *Severe Aplastic Anemia in Two Boys of Six and Three E Gorter (Leyden)—p 525
32 Myopathy with the Reaction of Myotony in Girl of Thirteen L Babonneix—p 532
33 The Mongolian Blue Spot in Chili and Brazil (La tache bleue mongolique a Santiago de Chili) L C Mackenna—p 535
à Sao Paulo) G Ferreira—p 536
34 Belgian Children (Enfants belges victimes de la barbarie allemande) J Comby—p 537

31 **Aplastic Anemia**—In both the cases described there seemed to be some unknown cause slowly paralyzing the bone marrow There was no hemolysis to speak of, as was evidenced by the lack of intense urobilinuria and of hemolytic substances The bone marrow was yellow and there was fatty degeneration of various organs, especially of the liver and heart, but there were no signs of infection as responsible for the syndrome, no endocarditis, in the one case in which necropsy was possible. The family was healthy and the child had never had any serious illness but had always been pale The pallor had increased suddenly about three weeks before death, and petechiae had developed with fever and vomiting

Bulletin de l'Académie de Médecine, Paris

December 5 1916 LXXVI No 48 pp 437 452

35 Frequency of 'Hippocrates Finger' among the Troops (Sur les rapports du psoriasis avec la tuberculose) Railliet—p 439
36 Peculiar Gravity of d'Herelle's Dysentery Bacillus (Sur de nouveaux bacilles dysenteriques) Capitan—p 440
37 Comparative Harmlessness of Surgical Pneumothorax (Sur l extraction des corps etrangers extrapulmonaires) P Bazy—p 441
38 *Experimental Inversion of Impulse for the Heart Beat (Production experimentale d extrasystoles ventriculaires retrogrades et de rythme inverse, par inversion de la conduction de l'excitation dans le cœur) J P Morat and Petzetakis—p 442
39 Concretions in Bladder after War Wounds of the Bladder (Des calculs vesicaux chez les blesses de la vessie) F Legueu—p 445
40 Shrapnel Ball Loose in Spinal Canal Extracted through Cauda Equina M Auvray—p 447

38 **Experimental Inversion of Impulse for Heart Beat**—Electric stimulation of points on the surface of the auricle induces extrasystoles in the ventricle, and Morat and Petzetakis have succeeded in inducing extrasystoles in the auricle by electric stimulation of numerous points on the surface of the ventricle They experimented on dogs that had had the spinal cord severed at about the seventh cervical vertebra, and succeeded in stimulating the ventricle until it contracted each time before the auricle, thus reversing the impulse They explain that a nonreversible phenomenon may be composed of factors, which in themselves are reversible, and this is evidently the case here

Paris Médical

December 2 1916 VI No 49 pp 469 512

41 *Reeducation of Disabled Soldiers (Reeducations fonctionnelle et professionelle) J Camus—p 470 (Reeducation fonctionnelle des amputes du membre superieur pour les travaux de cultivateurs) Nove Josserand and Bouget—p 479 (Methodes de reéducation professionnelle des amputes) Bourrillon—p 487 (Reeducation professionnelle d apres les varietes d impotences) A Nyns—p 493 (La mecanotherapie agricole) J Belot and Privat—p 498 (Les ecoles de réeducation professionnelle de l Union des colonies etrangères) J Camus—p 504

42 *Reeducation of the Blinded (Remarques sur la réeducation des aveugles) F Terrien —p 490
43 *Responsibility of the Training Schools for Disabled Soldiers in Case of Injury from Accident (La responsabilite des œuvres de reeducation des mutiles de guerre au point de vue des accidents) E Fontane —p 496
44 Roentgen Treatment of Muscular Retraction Four Cases M Mercier —p 509

41 **Reeducation of the Maimed**—This entire number is devoted to the reeducation of mutilated soldiers Camus discusses the role of the physician It is to him that all look to decide when and in what the disabled workman should be trained Camus discusses further the placing of the men after they are trained, perhaps placing together men crippled in legs and arms, their concerted work accomplishing more than either alone Nove-Josserand and Bouget give an illustrated description of devices in use to facilitate work on farms, showing how the stump of the arm can be utilized

42 **Reeducation of the Blinded**—Terrien urges that the blinded should be sent to their homes as soon as possible as they can get about much better in ways with which they are familiar A number of blinded soldiers are now usefully at work on farms, attending to the milking of the cows, digging potatoes, beets, etc,, thrashing and making brushes on rainy days It is indispensable for the blinded to learn to read and write the Braille characters, there are now 40 000 books or pamphlets with this type A printing set is now available which has the Braille character on one end and the ordinary letter on the other end The type is set up by any printer with the ordinary letters, but when the form is closed the printing is done from the other side, thus printing the Braille letters No other system for the blind has stood the test of time like the Braille characters

43 **Legal Responsibility of Training Schools for Injury from Accidents**—Fontane suggests that it might be well for the public and private organizations engaged in training the maimed and blinded to take out accident insurance policies to protect themselves in case of accidents to any of the men in their charge as legally they are responsible for injury the same as the proprietor of a factory

Presse Médicale, Paris

December 7 1916 XXIV No 68 pp 561 568

45 Bone Grafting in Treatment of Pseudarthrosis (Cure des pseudarthroses par la greffe osseuse) V Pauchet —p 561
46 Tuning Fork Test for Simulated Deafness (Epreuve des diapasons unissonants appliquee au diagnostic de la surdite unilaterale simulee) E Escat —p 562
47 *Tests of Reserve Force of the Heart (Epreuve d aptitude cardiaque a l effort.) C Lian —p 563

47 **Testing the Reserve Force of the Heart**—Lian declares that the mere counting of the pulse after a given physical exercise will reveal whether the heart can be depended on for extra effort or not His 250 tests, including fifty healthy persons, have amply confirmed that the pulse changes are a good index of the reserve force of the heart He gives illustrations of the exercises he has found most convenient and instructive for the purpose The first is gymnastic stepping in one place bending the knees, two steps a second This is kept up for a minute Then the patient stands still without speaking and the pulse is counted during the first quarter of each minute thereafter until the count is the same as before the exercise In the healthy this occurs in the third minute, with a weak heart five to seven minutes may be required for it even to approach the previous figure His second test is to have a weight of 11 pounds seized with both hands and carried above the head and then swung down between the parted and slightly flexed legs which are firmly planted This is repeated five or six times in the course of a minute, and the pulse is then counted as before

Progres Médical, Paris

November 20 1916 XXXI No 22 pp 213 222

48 *Hemiplegia Following Scarlet Fever L Lortat Jacob and R Oppenheim —p 213
49 *Traumatic Exophthalmic Goiter Leniez —p 215
50 Treatment of War Wounds of the Elbow (Traitement des plaies articulaires du coude dans les traumatismes de guerre) D de Fortunet —p 217
51 *Test for Picric Acid in the Blood in Factitious Jaundice L Tixier and A Bernard —p 218

December 5 No 23 pp 223 232

52 Symptoms from Contusion of Cervical Spine (Le syndrome d hypertension cephalo rachidienne consecutif aux contusions de la region cervicale de la colonne vertebrale) H Claude and H Meuriot —p 223
53 Relapses in Amebic Dysentery (Les reviviscences de la dysenterie amibienne) J Carles and Froussard —p 226
54 Shrapnel Ball in Hernia (Balle d obus enrobee par le grand epiploon et mobile dans un sac herniaire) L C Bailleul —p 228

48 **Postscarlatinal Hemiplegia**—The patient in the case described was a soldier who had had a seton wound in the neck three months before Comparing the symptoms with other cases of postscarlatinal paresis confirms the assumption that cerebral arteritis is responsible for the chronic infectious hemiplegia in such conditions

49 **Traumatic Exophthalmic Goiter**—Leniez reports three cases of typical exophthalmic goiter developing in two army officers and a private after being thrown from a horse or falling from a wagon Each had fallen on his head, and after intervals of one, two and three months symptoms of hyperthyroidism developed, more or less pronounced Leniez has encountered also a number of other cases in which trauma had been followed by some symptoms suggesting a tendency to hyperthyroidism consecutive to injury of the head The exophthalmos was never pronounced in any of these cases, but the expression of the eyes was peculiar

51 **Detection of Picric Acid in the Blood**—Fifteen drops of the blood are received in a test tube containing 3 c c of 0 95 per cent salt solution The tube is agitated two or three times in the course of an hour, and set aside for twenty-four hours Then 1 or 2 c c of the fluid surrounding the clot is taken up with a pipet and added to an equal volume of a 1 50 000 solution of methylene blue Shake vigorously and after an hour s contact add ten or fifteen drops of chloroform and agitate anew then allow to settle The chloroform becomes a deep green a bottle green if there is picric acid present otherwise the chloroform does not change its color, or becomes only slightly blue

Correspondenz-Blatt fur Schweizer Aerzte, Basel

December 9 1916 XLVI No 50 pp 1665 1696

55 *The Present Problems in Roentgen Treatment of Cancer M. Steiger —p 1665
56 Preparation of Rice Pericarp as Influencing Growth from Its Vitamin Content (Vitamin und Wachstum) F Stirnimann —p 1678
57 *Exfoliating Dermatitis in the Newly Born in Its Relation to Pemphigus A Wirz —p 1685

55 **Roentgen Treatment of Cancer**—Steiger declares that in his experience the Roentgen rays have proved their usefulness in treatment of myomas hemorrhagic climacteric uterine trouble tuberculous glands in the neck—avoiding disfiguring scars—in tuberculous peritonitis and for vulvar and anal pruritus For cancer he advocates surgical treatment but makes a practice of Roentgen exposures after every operation for cancer, and also in the inoperable cases Much progress will be realized he remarks, when manufacturers provide us with Roentgen tubes that will stand a second's tension of 200 000 volts instead of only 120 000 as now available Aluminum does not seem to be a heavy enough metal for filtering the rays He is now using a zinc filter 0 5 mm thick This holds back the soft rays in much larger measure than even 3 mm aluminum while it yields much more of the hard rays It has thus two great advantages over aluminum, it spares the skin better and penetrates better and deeper into the tissues than is possible with the aluminum filter The cancer was favorably influenced in about 30 per cent of his fifty malignant tumors, including twenty-six absolutely inoperable cases Three patients in this latter group have kept in good health since for nearly a year to date In thirty-four cases the Roentgen exposures were only for prophylactic purposes In this category is the case of a woman who had required several operations for a sarcoma of the abdominal wall, but has been free from recurrence during

the two years since the last operation In this interval she has passed through a twin pregnancy

57 **Exfoliating Dermatitis in Relation to Pemphigus**—Wirz cites literature showing an unmistakable connection between exfoliating dermatitis and pemphigus in infants and reports an additional convincing experience A 5-day old infant developed the exfoliating dermatitis and died No other case was known in the foundlings' home or in the hospital to which it was brought However, in both institutions several other infants and older children developed pemphigus not long afterward It seems as if the germ causing the exfoliating dermatitis in the infants induced pemphigus in the older children

Deutsche medizinische Wochenschrift, Berlin

November 23 XLII No 47 pp 1437 1468

58 *The Relations between Tsetse Flies and Trypanosomes (Glossinen und Trypanosomen) E Teichmann —p 1437
59 Dysenteriform Intestinal Disease with Edema T Rumpel and A V Knack —p 1440 Concluded
60 *Treatment of Bacillary Dysentery (Zur Behandlung der Bazillen ruhr) O Wiese —p 1443
61 Typhoid Conjunctivitis L Jakovich —p 1443
62 Small Epidemic of Typhus (*Eine kleine Fleckfieberepidemie unter russischen Landeseinwohnern*) E *Vieting —p 1444*
63 *Spondylitis of the Cervical Vertebrae (Malum Rustii) Hnatek —p 1445 To be concluded
64 *Examination of the Urine of Sick and Wounded Soldiers (Bei trag zur Untersuchung des Harns von Kriegsteilnehmern) C S Engel —p 1448
65 Indications for Operative Treatment of Abdominal Wounds—(Chok—Blutung—Peritonitis) O Hirschberg —p 1451
66 Hysteria and Fitness for Military Service (Hysterie und Kriegs dienstbeschadigung) F Grunbaum —p 1452
67 Treatment of Venereal Disease in the Army Hospitals (Die Lazarettbehandlung der Geschlechtskrankheiten) Zweig —p 1453
68 History of the Medical Certificate System for Soldiers (Geschichte der Medizin in Koln Die Entwicklung des militararztlichen Zeugniswesens) Haberling —p 1456

58 **Tsetse Flies and Trypanosomes**—Teichmann presents the present status of our knowledge on this subject He declares that it seems to be established that the trypanosomes in question are unable to pass through their whole cycle of development unless they have access to tsetse flies If the latter could be exterminated, these trypanosomes would die off with them

60 **Kaolin Fails in Treatment of Dysentery**—This is Wiese's conclusion from his extensive experience The men took the kaolin with extreme repugnance and complained afterward of sensations of oppression in stomach or bowel or both He insisted on keeping up the kaolin treatment, notwithstanding these by effects, until he found that it sometimes caked into hard lumps and these lumps caused irritation and pain as they were passed along Sometimes the lumps were as large as a hen's egg and hard as a stone He then dropped the kaolin entirely, and obtained much better results with the ordinary treatment thorough evacuation of the bowels, repeated moderate doses of simple tincture of opium, rinsing out the intestines with epinephrin enemas supplemented by animal charcoal given by the mouth, sometimes associated with bismuth subgallate

63 **Spondylitis of the Cervical Vertebrae**—In one of the three cases of Rust's disease reported, the trouble was of rheumatic origin, in the others syphilis or deposits of urates were responsible The clinical picture was practically identical in all, and the diagnosis of tuberculous caries seemed certain until involvement of other joints in the first case suggested a subacute form of articular rheumatism, affecting at first exclusively the suboccipital vertebrae The acute articular rheumatism cleared up the diagnosis in the first case, confirmed by the absence of evidences of an inflammatory process in the spine on roentgenoscopy Hnatek could find only three analogous cases on record In all there was considerable wasting and debility A concomitant apical tuberculous process pointed further to tuberculosis Careful watch over the other joints finally revealed further encroachment of the rheumarthritis In Condray's case, differentiation was facilitated by the *rheumatism in* both parents and by the sudden onset *in* two days following exposure to cold, one bitter night, near a drafty window The article is to be continued

64 **Albuminuria in Troops on Active Service**—Engel has had the urine examined of every patient admitted to the surgical hospital in his charge, a total of 3,210 men Albumin was found in 13 per cent but never in large proportions

Medizinische Klinik, Berlin

November 5 1916 XII No 45 pp 1167 1196

69 *Acute Articular Rheumatism (Zur Aetiologie des akuten Gelenk rheumatismus) F Rolly —p 1167
70 Ligation of Veins for Infectious Thrombosis from War Wounds (Vorbeugende und kurative Venenunterbindungen bei infektiosen Thrombosen im Felde) Hosemann —p 1169
71 Burns from Shell Scraps (Ueber Verbrennungen durch das Geschoss) G Magnus —p 1172
72 *Success of Parenteral Injections of Milk in Therapeutics (Ueber den therapeutischen Wert parenteraler Milchzufuhr) S v Dziembowski —p 1174
73 *Treatment of Convalescents from Nephritis (Zur Behandlung der Nierenkranken) Robert —p 1175
74 *Buds on Spirochetes Prove Plant Nature (Spirochaeta pallida—Schaudinn—und Spirochaeta nodosa—Hubener Reiter) E Mei rowsky —p 1181
75 *Treatment of Pneumonia in the Light of the History of Medicine (Die Behandlung der Pneumonie im Lichte der Geschichte der *Medizin*) T *Neuburger —p 1195*

69 **Etiology of Acute Articular Rheumatism Still a Mystery**—Rolly here reports from Leipzig the results of extensive experience with large numbers of cases of acute articular rheumatism In 118 cases at the acme of the febrile stage he found the blood always sterile, inoculating 20 c c or more of the venous blood on fluid and solid culture media In 2 other cases the staphylococcus was found but this was presumably accidental contamination In another case a streptococcus was isolated, but the case proved to be a viridans sepsis and not rheumatism With *Streptococcus viridans* sepsis there is liable to be transient swelling of the joints He does not venture to say that all previously published accounts of bacteria found in acute articular rheumatism are based on errors of technic, but queries whether mixed infection might not have been responsible for the positive findings The presence of bacteria on the tonsils and not in the interior of the body is no evidence that these bacteria are responsible for the articular rheumatism He found tonsillitis in 59 out of his 1,450 patients with acute articular rheumatism, 54 had sore throat, 54, pains in the throat, 10 of the patients had a history of recurring sore throat, 2 had had the tonsils operated on, and in 2 there was suppuration in the tonsils at the time The tonsils were found enlarged and red in 88, in 58 only red, in 133 only enlarged, plugs were visible in the tonsils in 23 and the tonsils were coated in 23 Other parts of the throat were red or swollen or both in 283, there was conjunctivitis in 3 and the conjunctiva was red in 6, 4 had bronchitis, and 1 acute rhinitis The patients also told that they had been subject to coryza (8), to cough (15), hoarseness (2), ear trouble (3), disturbances in swallowing (10), gastro-intestinal trouble (21) dryness in the throat (2), and 3 had had furuncles These figures demonstrate that sore throat is the portal of entry for acute articular rheumatism in many cases as it is of other diseases (nephritis, etc) But it is evident that other affections of the throat and other organs must also be considered *in this respect In one of the patients* acute articular rheumatism developed for the first time three weeks after an operation on the nose

Rolly presents evidence further to disprove the assumption that acute articular rheumatism is an anaphylactic reaction This assumption cannot be upheld, he says, so long as it is impossible to induce in animals the joint disturbances, the mere fact that fever can be induced is not adequate proof that this is the explanation of the disease In this connection Rolly tabulates the serum sickness phenomena observed in 2,122 diphtheria cases at Leipzig, only 5 75 per cent of all showed any disturbance from injection of antitoxin A congenital or acquired special susceptibility to alien serum is thus quite exceptional He also points out that only 57 5 per cent of those showing any disturbance developed an exanthem, with or without fever, while 33 3 per cent. had merely a febrile reaction, only in 9.2 per cent were there any disturbances in the joints and these were limited to pains in over half. Thus in only 4.8 per cent of the 122 who showed the slightest disturbance from the antitoxin, was there any tendency to swelling of joints. These figures show the rarity of joint trouble in serum sickness, and hence render it extremely improbable that acute articular rheumatism can be produced by anaphylactic phenomena. But anaphylactic phenomena may occur in its course the same as in any infectious disease.

72. **The Therapeutic Importance of Parenteral Injection of Milk.**—In this communication from the army hospital at Posen, Dziembowski reports encouraging experiences with what he calls 'protein body therapy." He emphasizes that the field for therapeutic parenteral serum and albumin injections is being enlarged more and more as it has proved that in many specific parenteral methods of treating disease there is usually also a nonspecific factor. A colon bacillus or pyocyaneus vaccine may work in typhoid as well as a typhoid vaccine, deuteroalbumose in typhus, diphtheria and tetanus, and diphtheria antitoxin or simple horse serum in hemophilia, erysipelas and other dermatoses. The use of milk for the purpose seems particularly promising as this is a mixture of albumin which is derived from the organism itself and its composition is constant. He has treated about 100 patients with intramuscular injections of 5 c.c. of milk, boiled for ten minutes in a water bath. In a few hours afterward there is regularly a chill, of variable intensity, and a rise of temperature from 38 to 39 C. (102.2 F.). The fever may last for a few hours or into the next day, and sometimes there are palpitations, headache, lassitude and depression but these last only for a few hours. No injury of organs, heart or kidneys, was ever observed and except for a little painfulness at the point of the injection no other untoward by-effects. The number of leukocytes runs up to 15 000 or even higher within a few hours, the increase is greatest in the neutrophils and then in the large mononuclears, while the lymphocytes show little increase or a decline.

His experiences with the method were decidedly favorable, especially with septic war wounds in four cases of severe erysipelas, in tuberculous bone and joint disease, in three of actinomycosis, and in large numbers of fractures. In the surgical tuberculous cases, with one injection every four days, the process healed within a few weeks after it had been dragging along previously a most tedious course. In the fracture cases, consolidation occurred in certain cases in which there had been previously scant tendency thereto and a pseudarthrosis was feared or had already developed. Good effects were also realized when the milk was injected for its styptic power, aiding in arresting internal hemorrhage or bleeding from mucous membranes or from wounds. In psoriasis the effect was also highly satisfactory, reenforcing the local applications. In one case with extremely severe psoriasis the skin cleared up almost completely in a few weeks under the injection of 5 c.c. of milk twice a week supplemented by quartz-lamp exposures and tub baths.

73. **After-Treatment of Acute Kidney Disease.**—Robert describes the way in which he trained convalescents from nephritis so they could resume their duties at the front and stand the army fare and the weather vicissitudes and the various tests with which he estimated the earliest moment when this was possible.

74. **Demonstration that Spirochetes are Plants.**—Meirowsky reproduces sixty illustrations of spirochetes as published by different authors, all showing bunches in the course of the spirils or actual buds on a stem. Hubener and Reiter regarded these bunches as characteristic merely of the spirochete they recently found as the causal agent of Weil's disease, and hence they named their spirochete the *Spirochaeta nodosa*. But Meirowsky declares that these are buds and that they demonstrate beyond question that spirochetes belong to the vegetable kingdom as true lateral branches are never found on protozoa while they are characteristic of filamentous fungi. Meirowsky called attention in 1914 to these buds on spirochetes, but his findings were rejected or explained away by others. He insisted further that these buds when detached from the parent stem, correspond to Much's granula with tubercle bacilli, and this seems now to be definitely established. The spirochetes of syphilis and of Weil's disease, and the bacilli of tuberculosis and leprosy all pass through a granular phase in the course of their existence. This explains the positive results obtained by Hubener and Reiter and also by the Japanese in infecting guinea-pigs with the filtered virus containing no spirochetes, confirming Neisser's and others' positive inoculation of monkeys with filtered syphilis virus. In the granular form the virus is able to pass through the filter. Be this as it may, the fact of the plant nature of the spirochetes now seems to be settled beyond question, he declares, as Koch, Metchnikoff and others have always maintained.

75. **Pneumonia.**—This work reviews the treatment of pneumonia during the last century or two. It states that Broussais regarded local and general withdrawals of blood as the best treatment, using 100 000 leeches in his service during the year of 1819, and during his own last illness having venesection done six times and sixty leeches applied. In 1827, 33 000 000 leeches are said to have been imported into France. Traube in Germany continued this use of venesection and leeches, and in 1849 a physician who had not bled a certain pneumonia patient had to answer in court for this neglect after the death of the patient, but was acquitted. Skoda was about the first to venture to teach that in most cases venesection was if not harmful at least superfluous. He advocated it only when a robust patient was suffering from much dyspnea with bloody sputum. In 1852, Neuburger's professor at Bonn advised him to go to Vienna to continue his studies, saying "They are not venesecting there in pneumonia."

One's own observation he continues teaches the more favorable course of pneumonia when nothing is done and the case is left entirely to Nature. The pulse may rise and fall, and the fever drop with or without the sweats of the crisis. We understand better the nature of the crisis since we know more of immunology. The outcome depends firstly on the greater or less resisting power of the heart, hence the importance of the pulse in this disease and the danger of the disease for infants and the elderly, secondly, on the height of the fever, thirdly, on the involvement of the nervous system, the so-called cerebral erethism of the elderly, and, fourthly, on the extent of exudation in the lung. The patient may recover with most extensive infiltration and may succumb with involvement of only one lobe. The regularity of the cyclic course surpasses that of other diseases, and the earlier the crisis appears the better, as this shows good production of antibodies.

Our task is to watch over the disease uninfluenced by drugs or other measures, keeping the patient in bed and avoiding needless effort till the last trace of infiltration and of fever has vanished. As pneumonia in hard drinkers does better under opium this should be given to ward off delirium tremens. Any debilitating diarrhea must be corrected, and the heart action kept good with small doses of digitalis (0.5 gm. in twenty-four hours), caffein sodium salicylate (0.2 gm. three times a day), and subcutaneous doses of camphor, the work of the heart facilitated by expectorants and the strain from coughing reduced with narcotics, keeping up the strength with liquid or solid food, and, if the fever is very high two doses of phenacetin in the twenty-four hours, by the mouth or rectum, with ice to the head and cool compresses on the affected side of the chest or, if this does not help, with packs. Adults do not bear well repeated cool or even tepid full baths; young children seem to bear them better. As the crisis approaches or passes, the nervous system may be involved, the tongue trembling, the tendons twitching and delirium sets in. If this is not a complication from arteriosclerosis of the cerebral arteries, stimulants are indicated, brandy, camphor, mellow wine. The longer the physician practices, so that he can get a bird's eye view of his experiences the more distinctly he realizes that our medical measures are of incomparably small effect in comparison with the internal processes of the organism. Medical science seems to move in circles, but the circles are like the coils of a spiral, each one bringing us nearer to the truth.

Munchener medizinische Wochenschrift, Munich

November 21 1916 LXIII No 47 pp 1649 1684

76 *The Arsenic in Lead Projectiles and Its Possible Toxic Action (Die toxische Rolle des in Bleigeschossen enthaltenen Arsens) L Lewin —p 1659
77 *Absorption of Air through the Stomach Walls (Ueber Magen atmung beim Menschen) A Ylppo —p 1650
78 *The Crop of Newly Born Shows no Deterioration from the War (Zur Frage der Kriegsneugeborenen) A Tschirch.—p 1650
79 *Syphilitic Partial Heart Block (Herzsyphilis mit Adams Stokes schem Symptomenkomplex ausgezeichnet durch Tausende von epileptiformen Anfallen) A Holterdorf —p 1651
80 *The T Peak in the Electrocardiogram (Ueber die Finalschwan kung des Elektrokardiograms) H Gerhartz —p 1655
81 *Arrest of Hematemesis with Blood Platelet Extract (Stillung einer schweren Magenblutung mittels Coagulen) F Brautigam —p 1656
82 Later Outcome of War Wounds of the Lungs (Das spatere Schicksal der Lungenverletzten) D Gerhardt —p 1669
83 *Endurance with Kidney Disease (Kriegsverwendbarkeit der Nie renkranken) Geigel —p 1671
84 Treatment of Contractures (Kontrakturenbehandlung) J Over gaard —p 1671
85 Swinging a Weight in Treatment of Joints (Pendeln unter gleich zeitiger Extension) v Baeyer —p 1674
86 Spring Splint to Ward Off and Treat Talipes Equinus (Eine Schiene zur Vorbeugung und Behandlung der Spitzfusskontrak turen) Moeltgen —p 1675
87 Stains in Pencil Form for Microscopic Sections (Farbung mikro skopischer Praparate mit Farbstiften) E Friedberger —p 1675
88 Various Uses for the Roller Couch (Verschiedene Verwendungs moglichkeiten des Prausnitzschen Rollagers) W Prausnitz —p 1676
89 *Nerve Blocking in the Field (Ueber Leitungsanasthesie im Felde) H H Schmid —p 1677
90 Difference between Gas Phlegmon and Gas Gangrene (Worauf beruht der Unterschied in der Mortalitat des Gasbrandes im Frie den und im Krieg?) L Zindel —p 1678 (Zur Frage der Metastasenbildung bei Gasgangran) G Ranft —p 1682
91 Treatment of Fractured Jaw (Zur Behandlung schlecht geheilter Kieferbruche) Walkhoff —p 1680
92 Tardy Tetanus Relapse (Fall von Tetanusrezidiv nach 5 Mona ten) Heichelheim —p 1681
93 Roentgen Localization of Foreign Bodies Baath —p 1682
94 Chronic Rhinitis Handkerchiefs as Source of Reinfection W Austerlitz.—p 1683
95 *Lice in Transmission of Relapsing Fever Prussian —p 1683

76 **The Toxic Action of the Arsenic in Lead Projectiles**—Lewin has found that the lead and antimony alloy used in making shrapnel balls is liable to contain from 1 to 3 per cent arsenic, and he has been investigating the possible toxic action from a shrapnel ball in the tissues An ordinary ball weighing 10 gm, containing 8 per cent antimony with about 14 mg arsenic, was chopped into 100 pieces and submitted to the action of hydrochloric acid or olive oil The results showed that such balls in the stomach are not liable to prove toxic but, embedded in the tissues, the alkaline juices act on the projectile and release the arsenic But even here the arsenic would be carried away and harmlessly eliminated On the other hand, the danger from the lead is paramount and always serious The lead is comparatively soluble in the body juices and fats while it is retained and stored up in the nerves and brain and is liable to induce manifold symptoms

77 **Absorption of Air in the Stomach**—Ylppo experimented on himself, introducing given amounts of gas or air into his stomach He found that it was evidently absorbed by the stomach walls, the alveolar air promptly showing the effect Further tests established that carbon dioxid and oxygen diffused into the blood through the walls of the gastro-intestinal tract while common air did not diffuse and was passed along as flatus

78 **War Babies**—Tschirch reports statistics from Jena which show that the infants that have been born during the war average as well in weight as during peace times Also that lactation does not seem to be modified by the scarcity of fat and albumin in the food

79 **Gummas in the Heart**—The patient in the case described was a man of 44 and he presented the Adams-Stokes syndrome and also attacks like the petit mal of epilepsy, completely losing consciousness these brief attacks occurring forty or fifty times an hour, day and night, so that in the five weeks the man was in the hospital he had nearly 25,000 Toward the end the intermissions grew so short that the attacks were practically continuous No benefit was apparent from mercurial and iodid treatment and the condition was considered too precarious to attempt salvarsan At necropsy several gummatous nodules were found in the heart but the auricular-ventricular bundle showed merely small-cell infiltration between the muscle fibers and no gummatous changes The auricle beat three or four times to the ventricle s once but the regular ratio was preserved, the heart block not being complete The only case approaching this in respect to the frequency of the epileptiform seizures was one of Zong's with 200 in twenty-four hours, but in the present case there were 800 With the onset of the attack, the ventricle action seemed to be suspended completely for from five to forty-five seconds, indicating that the heart block had become total during this phase but partial conduction was soon restored again The arrest of the ventricle action suggests that a reflex from the heart shutting off the blood from the brain, was responsible for the attack. Disturbances of this character might retrogress under specific treatment, but the condition is generally too far advanced when the case reaches the physician If the assumption is correct that other fibers might vicariously conduct the impulse, even with actual heart block, then antisyphilitic measures might prove successful even in quite pronounced cases

80 **The Ventricle-Systole Wave of Electrocardiogram**—Gerhartz states that the final T peak occurs during the systolic phase of the heart action but does not necessarily end with it. Straub recently analyzed the electrocardiogram in a case of paroxysmal auricular tachycardia and found that the normal interval of 0 39 was reduced to 0.25 He regarded it as impossible for this abnormal shortening of the interval to be due to a more rapid course of the systolic contraction or even for it to parallel the latter This view is confirmed by the findings in a normal man described by Gerhartz In rest, the diagram shows a longer interval between the R and the T peaks but the T peak extends farther Immediately after physiologic exercise, the T peak begins earlier and ends before the corresponding end of the T peak at rest while the following interval is not much more than a third of the same interval in repose and the P peak is only about two thirds as long The systole is thus materially shortened under the influence of mild physiologic exercise It seems thus to be established that the T peak can change independently of the R or ventricle peak and not parallel the duration of the systole The shortening of the systole with paroxysmal tachycardia is thus merely an exaggeration of normal relations

81 **Arrest of Gastric Hemorrhage with Extract of Blood Platelets**—After a gastro-enterostomy the patient had profuse hemorrhage from an old and supposedly healed ulcer While the abdomen was open the blood platelet extract was injected into the stomach in a 10 per cent solution, the hemorrhage ceased at once and there has been no return during the month to date The danger of arousing an old healed ulcer should be borne in mind in operating on the stomach, and some of this extract might be injected or swallowed as a preventive

83 **The Endurance in Kidney Disease**—Geigel naturally discusses this subject from the standpoint of fitness for military service The quite chronic forms of interstitial nephritis and true contracted kidney, which have developed insidiously do not exclude army service unless there are acute attacks of parenchymatous inflammation Prophylactic vaccinations should be avoided with kidney affections of all kinds unless an epidemic threatens Not much endurance can be counted on when there has been pulmonary edema uremia or cerebral hemorrhage at any time, as also when the fundus of the eye shows changes or the blood pressure is 180 or over Garrison duties are permissible when the blood pressure is between 160 and 180 The rise in blood pressure under the influence of war conditions is not to be dreaded when the individual is young or middle aged, but arteriosclerotic contracted kidney excludes even light service

89 **Nerve Blocking in the Field**—Schmid has found local anesthesia of the greatest use for the wounded when the injured area is accessible, but when it is deep in the tissues

the nerve blocking technic is preferable and he is enthusiastic in his commendation of it With the paravertebral technic it is possible to induce analgesia for the entire trunk and neck For parasacral anesthesia he injects 2 c c of a 1 per cent solution of novocain and epinephrin into the sacral nerve as it emerges and runs along the sacrum The needle is introduced about 2 cm to one side of the sacrococcygeal joint This is repeated on each side. The second and fourth sacral nerves are injected under the guidance of the finger in the rectum, the needle feeling its way along the sacrum If the phrenic nerve is carefully avoided he thinks there is no danger from these nerve-blocking technics

95 **Lice in Transmission of Relapsing Fever**—The Journal mentioned on page 155 Töpfer s statements to the effect that while lice are an important agent in the transmission of relapsing fever yet it is not by their bites but only by their being crushed on the skin that the spirochetes find their way into erosions from scratching Prüssian's experience has confirmed this assumption in every respect, and it offers an explanation for the previously inexplicable immunity to relapsing fever often displayed by attendants and others with cleanly, hygienic habits

Wiener klinische Wochenschrift, Vienna

November 2 1916 XXIX No 44 pp 1385 1416

96 *Syphilitic Aorta Disease L v Korczynski—p 1385 Continued
97 Various Forms of Paratyphoid B E Sluka and R Pollak—p 1390
98 *Eosinophilia after Vaccination against Typhoid (Zu den zytologischen Veranderungen nach der Typhusimpfung) M Labor—p 1393
99 Changes in the Stomach with Paratyphoid (Ueber gastritische Veranderungen bei Paratyphus) T Frankl and M Benkovic—p 1394
100 Lumbar Puncture 'Cures' Certain Types of War Hysteria T v Podmaniczky—p 1396
101 *Typhus (Zur Epidemiologie und Prophylaxe des Fleckfiebers) J Fonyo—p 1397 Concluded
102 Atypical Variola, Two Cases (Atypische Blatternfalle) Wiener—p 1413

96 **Syphilitic Aorta Disease**—Korczynski reviews recent literature on this subject and reports data compiled in Bosnia and Herzegovina during the last two years At the Sarajevo hospital there were during this period 251 cases of disease of the cardiovascular apparatus, exclusive of pericarditis, and in nearly 22 per cent syphilis was present. Half of the fifty-four patients were between 40 and 50, but there was one of 15, one of 18, and two were between 20 and 30, with four between 60 and 65 Over 70 per cent were from cities The shortest interval between infection and the aorta affection was three years, from fifteen to thirty was the average Grau has reported a case developing forty-one years after infection The leukocyte picture was modified in nearly every case, the small lymphocytes being abnormally numerous This in itself suggests the syphilitic nature of the trouble

98 **Modification in the Blood After Vaccination Against Typhoid**—Labor found abnormally high eosinophil count in a number of men during an epidemic of scurvy Study of this eosinophilia demonstrated finally that it was a tardy phenomenon following vaccination against typhoid In ninety healthy men and wounded vaccinated against typhoid but who had not been given antitetanus serum he found no eosinophilia the first month it was present in 20 per cent the second month, in 57 per cent in the third month, in 43 per cent in the fourth with the maximum eosinophilia of 21 per cent in two of these cases By the sixth month no eosinophilia was evident, in the seventh month slight eosinophilia was apparent in a few and none after this The lymphocytosis of the first period gives way to this eosinophilia which persists an astonishingly long time No connection between it and the agglutinating property was evident. In two cases of typhoid occurring in the second and fifth month the eosinophils were much below the normal figure

101 **Typhus**—Fonyo's article was reviewed in these columns January 13, p 156 abstr 96

Gazzetta degli Ospedali e delle Cliniche, Milan

November 23 1916 XXXVII No 94 pp 1473 1488

103 *Sweats in Meningitis not Connected with the Fever (Gli accessi sudorali nella meningite della base) G A Pari—p 1477

November 26 No 95 pp 1489 1504

104 Localization of Foreign Body in Pleura by Percussion of Base of Thorax S Gangi—p 1492
105 Treatment of War Fractures (Sulla cura ed in specie sulla immobilizzazione delle fratture di guerra) R Mosti—p 1494

November 30 No 96 pp 1505 1520

106 Typhoid plus Tetragenus Infection C B Farmachidis—p 1508

103 **Sweats in Meningitis**—Pari calls attention to sudden universal sweats in basal meningitis, independent of the course of the fever They seem to be connected with the motor phenomena, as is evident from the details of two typical cases related the sweats coming on and subsiding with the symptoms from irritation of the cerebral nerves

Policlinico, Rome

December 3 1916 XXIII No 49 pp 1417 1449

107 Mutilating Operations for War Wounds (Le operazioni demolitive nei grandi traumatismi di guerra) M Francini—p 1417
108 *Psoriasis after Emotional Stress and Trauma (Sulla cosidetta psoriasis emotiva e traumatica) C Vignolo Lutati—p 1422
109 *Fever with Mastoiditis (Il valore del sintoma febbre nella diagnosi e nelle indicazioni operative della mastoidite acuta e subacuta) G Bilancioni—p 1424

December 10 No 50 pp 1453 1486

110 *Strangulated Femoral Hernia (Di 5 casi di ernia crurale strozzata Considerazioni intorno alla patogenesi dell ernia crurale in uno di questi casi) A Miliani—p 1453
111 *Emergency Hemostasis in War Wounds (Emostasia provvisoria nelle ferite in prima linea di guerra) R Sacco—p 1458
112 Technic for Vaccination against Typhoid L Tatarelli—p 1460
113 Malaria among the Italian Soldiers (La malaria fra i nostri soldati) P Timpano—p 1461
114 *The Eye Affections of Scientists (Intorno al mal d'occhi che rese cieco L. A Muratori) G Bilancioni—p 1470

108 **Psoriasis from Emotional Stress**—Lutati has been impressed with the numbers of cases of psoriasis among the soldiers in Italy, the same as Gaucher in France It seems to develop after a nervous shock, a violent emotion or trauma but Lutati is convinced that this can occur only when there was already a possibly latent tendency to the disease

109 **Fever in Mastoiditis**—Bilancioni cites some typical cases to illustrate that fever is by no means a constant accompaniment of even very severe cases of mastoid disease, even in young children

110 **Pathogenesis of Femoral Hernia**—Miliani reports some cases of femoral hernia which sustain T Turner's views as to the mechanism of the development of this form of hernia, as published in 1914

111 **Emergency Hemostasis for War Wounds**—Among the measures advocated, Sacco calls attention in particular to immediate suture of the skin as a means to control bleeding from a wound made by bullet or shrapnel ball, without wasting time in seeking for the exact source of the lesion He found that the hemorrhage promptly stopped as soon as the skin wound was sutured In the cases described the wounds had been dressed on the firing line, but the oozing of blood kept up until the skin was sutured

114 **Ocular Anomalies that Lead to Blindness**—Bilancioni cites a number of eminent scientists in different lands who lost their eyesight, saying that cataract does not seem to be more frequent among scientists and professional men than among other classes of the population, but glaucoma, detachment of the retina sclerochoroiditis (especially in myopic eyes) retinal hemorrhages and other intra-ocular disturbances in circulation occur in far larger proportion among persons of a studious tendency than among others He says that not a few professors in the universities of Italy have become blind from optic neuritis, retinal hemorrhage or detachment of the retina

Siglo Medico, Madrid

October 28 1916 LXIII No 3281 pp 689 704

115 *Sarcoma of the Choroid B Castresana Conclusion p 691
116 Treatment of Urticaria E de Oyarzabal—p 694
117 Phlebotomus Mosquitoes in Spain Pittaluga—p 695

115 **Sarcoma of the Choroid**—The first part of this article was summarized in The Journal, Dec 2, 1916, p 1705

Hospitalstidende, Copenhagen

November 29 1916 LIX No 48 pp 1157 1180

118 *Idiopathic Perirenal Hematoma C Tage Hansen —p 1157
119 *Experimental Research on Bile Peritonitis without Perforation of the Biliary Passages (Studier over Galdeperitonit uden Perforation af Galdevejene) A Blad —p 1163 Commenced in No 47 p 1133

118 **Idiopathic Perirenal Hematoma**—In Hansen's patient, a secundipara of 35, the hematoma entirely encircled the kidney, but no cause for it could be detected on direct inspection of the kidney, pelvis or suprarenals Recovery was soon complete after draining the blood away In some of the twenty-three cases on record nephrectomy was done, in others the hematoma was merely drained All died of the seven not given operative treatment, and four of the sixteen operated on The diagnosis was made beforehand in only three cases

119 **Experimental Bile Peritonitis without Perforation of Biliary Passages**—Blad gives the details here of his work on rabbits and twenty dogs He thus demonstrated that colloids are unable to pass through the gallbladder walls, but that crystalloids pass readily through them Hence if the gallbladder contents become digested by ferments in connection with bacterial action, the bile can pass readily through the walls of the biliary apparatus without perforation He explains that the ferments involved are probably derived from the pancreas

Hygiea, Stockholm

1916 LXXVIII No 22 pp 1681 1760

120 *Hemangiomas and Horn on Foot (Ett fall av multipelt kavernost hamangiom kombinerat med hudhorn) A Troell —p 1681
121 Medical Experiences in Persia (Några minnen och erfarenheter från Persien som lakare vid gendarmeriet) C Carlstrom —p 1692

120 **Multiple Hemangiomas on the Foot**—The patient was a girl of 8 and there were several tumors of the hemangioma cavernosus type at various points on the foot, and the whole leg was larger than its mate The anomalies were evidently congenital, including a hornlike excrescence on the big toe Under operative measures followed by radium exposures approximately clinical normal conditions were restored

Norsk Magazin for Lægevidenskaben, Christiania

December 1916 LXXVII No 12 pp 1525 1660

122 *Drainage of the Peritoneum in Peritonitis N Barth —p 1525
123 *Sacral Anesthesia to Relieve Pruritus (Sakralinjektioner ved pruritus i genito analregionen) W Holland —p 1557
124 *Corneal Cyst with Secondary Glaucoma (Korneoskleralcyste med epitelindvandring til camera anterior og sekundært glaukom) S Hagen —p 1567
125 *Polypous Adenomas in Gastro Intestinal Tract (Polypøse adenomer i ventrikel og tarmkanal) R Ingebrigtsen —p 1578
126 *Pathology and Treatment of Traumatic Aneurysm C Johannessen (Petrograd) —p 1586
127 *Herpes Zoster (Motoriske og sensible forstyrrelser ved Herpes zoster) V Magnus —p 1612

122 **Drainage with Peritonitis**—Barth reviews the literature, 1912 to 1915 on the subject of draining the peritoneum in peritonitis The cases of appendicitis in his own experience (Schilling's service, Christiania) accompanied by peritonitis are tabulated, the sixteen one-page tables thus giving an oversight of the outcome with and without drainage and with and without rinsing Statistics from other clinics are cited, the length of stay in the hospital being also regarded The summary conclusion from the whole is that the outcome is better when diffuse peritonitis is treated with drainage, but localized peritonitis does not seem to require it, the results being practically the same whether drains are used or not

123 **Sacral Anesthesia for Genito-Anal Pruritus**—Holland remarks that in cases of genital or anal pruritus rebellious to all other measures, great benefit can sometimes be obtained from temporary anesthetization of the region The itching and the scratching keep up a vicious circle, let this be broken once and conditions may right themselves As a comparatively simple and extremely effectual measure for the purpose, he commends sacral injection of a weak anesthetic solution He describes six typical cases of pruritus of the genito-anal region in men between 30 and 66 The itching was alleviated by one injection and subsided entirely after a second or third There was complicating eczema in some of the cases, and the pruritus was so intense in one case that sleep was impossible This patient had obtained no relief from local applications and Roentgen exposures, but the pruritus was practically conquered with four sacral injections, the first two of 20 c c of 0 9 per cent saline plus 0 1 and 0 15 gm novocain, the last two of 48 c c of water with 0 4 gm novocain Once in a great while there is a little itching still, but it is mild and transient In another case the itching showed no modification after sacral injection of 48 c c of 4 5 per cent saline containing 0 24 gm novocain Eight days passed with no apparent improvement, then suddenly the pruritus ceased, and there has been no return of the itching during the ten months to date This patient was a clerk of 30 and the pruritus had tormented him for two years, involving the entire genito anal region, but he has been entirely free from it since the eighth day after the injection last February Holland reiterates that the practical result harmonizes with the theoretical reasoning, the benefit being constant and striking, while the injection can do no harm at the time or later The effect seemed better when water was the vehicle rather than saline and when from 0 2 to 0 3 gm novocain was used In some of the cases the anesthesia in the region was not complete but the pruritus was relieved At first he used but little fluid, but later injected more until he felt a resistance With a little overpressure the fluid works its way into the nerves better In three of the cases the pruritus might be regarded as of the senile type, the men being from 60 to 66, the others were in the thirties The technic was that described by P Bull and W Enderle (mentioned in THE JOURNAL, Aug 14 and Sept 25, 1915, pp 658 and 1147 It is practically the same as Cathelin's epidural injection)

124 **Corneal Cyst**—The boy of 10 had a typical corneal sclerotic cyst in the right eye Epithelium cells had invaded the anterior chamber and secondary glaucoma developed The microscopic findings in the enucleated eye are reproduced

125 **Gastro-Intestinal Polyposis**—Ingebrigtsen's report is based on sixteen cases of polypous adenoma in the stomach the patients all over 40, and one case of intestinal polyposis in a man of 36 In two of the stomach cases there was also a cancer in the stomach, and in one case there was actual gastric polyposis

126 **Traumatic Aneurysm**—Johannessen reports practical experiences in the war and much experimental research on dogs to determine the effect on the venous circulation of ligation of the corresponding artery The venous circulation dropped very low after ligation of an artery The animals were all under the influence of a general anesthetic Lying on the back the pressure in the femoral vein after ligation of the femoral artery was 7 mm mercury, in the Trendelenburg position it was from 4 to 2 mm , after compression of the femoral artery, it was 1 5 mm, and after compression of the abdominal aorta only from 0 5 to 0 mm or below This low pressure sucks the blood from the arterial collaterals directly into the veins The larger the artery, the greater the drop in the venous pressure, and this hinders the development of good collateral arterial circulation These and other experiments related teach the lesson that ligation of the vein after ligating the corresponding artery, promotes the arterial collateral circulation

127 **Herpes Zoster**—Magnus has been investigating the sensory and motor disturbances accompanying or following herpes zoster and reports here seven cases in which there were motor disturbances In the eight other acute cases and twenty-three convalescents there were no motor symptoms He and others have published a few necropsy reports showing disseminated foci of myelitis following herpes zoster, and in one case of herpes zoster he found diplococci in a round cell infiltrate in the anterior grey cornu The eight cases with motor disturbances are described in detail, with illustrations The weak muscles corresponded to the region innervated by the nerve involved in the herpes zoster The region that had been involved in the herpes zoster was often left also with sensory anomalies for a few months

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SUBACUTE AND LATENT INFANTILE SCURVY

THE CARDIORESPIRATORY SYNDROME (A NEW SIGN)

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In previous papers on this subject[1] it has been established, I believe, that infantile scurvy may be brought about by a diet of pasteurized milk An investigation of this question seemed not only indicated but also urgent in view of the increasingly widespread use of pasteurized milk, and of the fact that the National Commission on Milk Standards, a committee of the highest authority, has expressed the opinion that the heating of milk, as carried out in the course of pasteurization, does not destroy its enzymes or other chemical constituents[2] As stated, my experience did not coincide with this opinion On the contrary, I found that when the use of orange juice was discontinued in the dietary of a group of infants who were being fed on milk which had been subjected to a temperature of 140 F for thirty minutes, some of them in the course of from two to four months showed signs of mild scurvy That these manifestations were in reality scorbutic, and furthermore that they were attributable to the pasteurized milk, was proved by their rapid disappearance when orange juice was again added to the dietary, or when raw milk was substituted for the heated milk The practical deduction from these observations is not, however, that pasteurization should be discouraged, or that milk treated in this way is objectionable, but merely that the important fact should be recognized that it is not a complete food for infants and that it is imperative to give an antiscorbutic substance in addition[3] When this prophylactic measure is observed, fresh pasteurized milk becomes a most valuable food for infants, and is to be highly recommended on account of the security which it affords It should be understood that my position in regard to the effect of pasteurized milk is not based on mere refinements of diagnosis, or on rare and exceptional cases, such as are of interest only to the specialist On the contrary, I believe that scurvy brought about in this way is not at all infrequent, that it is indeed the most common cause of scurvy, and that it induces a type of the disorder which generally passes unrecognized If we are to diagnose scurvy promptly, and not overlook its more subtle manifestations, the classic textbook description of this disturbance must be supplanted by one which is less crude and more faithful to true clinical conditions

The stereotyped picture of infantile scurvy, and the one which this term commonly suggests, is that of a poorly nourished infant, lying with one or both thighs flexed on the abdomen, who, on closer examination, is found to have bleeding, spongy gums, and enlargement of the lower end of the femur, associated with exquisite tenderness This is the syndrome which the medical student carries away to guide him in his everyday practice It is the florid type, encountered only occasionally, and requiring merely a routine physical examination for recognition The commoner form, which may be termed "subacute infantile scurvy," is composed of a large number of symptoms which are inconclusive individually, and may well escape a correct interpretation The affected baby is usually in the second half of the first year of life, and does not gain or gains but slightly for weeks It may be fairly well nourished, but is pale, with perhaps slight edema of the eyelids The mother or nurse complains that the child is irritable and peevish, and that the appetite has diminished The gums may show merely a lividity or slight peridental hemorrhage, which on subsequent examination is no longer visible, and may have consisted merely of a rim of crimson edging the borders of the upper gum, or perhaps have been situated behind the upper incisor, as Still[4] pointed out On closer examination it may be observed that the papillae of the tip of the tongue are markedly congested, and that a petechial spot is to be seen on its frenum, on the palpebral conjunctiva, or here and there on the surface of the body, more especially where there are erosions, eczema or other skin lesions[5] Attention may be called to tenderness of the lower thighs, which in some instances is definite, in others so ill defined and fleeting that it is impossible to feel convinced of its significance or even reality There may be slight edema over the crests of the tibia, of the kind which does not pit on pressure The knee jerks are almost always markedly exaggerated The urine is found to be normal or to contain some albumin and red and white blood cells

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[1] Hess A F and Fish Mildred Infantile Scurvy The Blood, the Blood Vessels and the Diet Am Jour Dis Child December 1914 p 386 Hess A F Infantile Scurvy II A New Aspect of the Symptomatology Pathology and Diet The Journal A M A September 18 1915 p 1003 Infantile Scurvy, III, Its Influence on Growth (Length and Weight) Am Jour Dis Child August 1916 p 152 Infantile Scurvy IV The Therapeutic Value of Yeast and of Wheat Embryo Am Jour Dis Child January 1917 p 98

[2] Report of the Commission on Milk Standards appointed by the New York Milk Committee Pub Health Rep May 10 1912

[3] In referring to pasteurized milk as inducing scurvy I do not wish to state that the heating is necessarily altogether responsible for this result There may well be other contributory factors such as the staleness of the milk

[4] Still G E Common Disorders and Diseases of Childhood London 1909 p 105

[5] The extent of the petechiae and other hemorrhages in infantile scurvy depends on the individual predisposition of the child in this regard As has been pointed out this sign is due mainly to a weakness of the vessel wall and not to an alteration in the coagulability of the blood In infants who show an instability of the capillaries as manifested by the capillary resistance test' the disorder is apt to be characterized clinically by the various typical signs of hemorrhage

These symptoms do not constitute a rigid entity, but are subject to manifold variations The syndrome may be rendered less typical and more difficult by the fact that the infant has gained steadily rather than lost in weight, as is sometimes the case, particularly if the food has been insufficient in quantity during the first few months of life There are other symptoms worthy of note, especially those which have been disclosed by the aid of the Roentgen ray As described and portrayed elsewhere, the heart may be involved in infantile scurvy, this may be evident to ordinary physical examination, as enlargement, especially to the right, and may be accompanied by dulness and diminished breathing posteriorly at the bases of the lungs This type of enlargement is often well shown in roentgenograms, as well as a marked broadening at the base of the heart, at the site of the large vessels (Figs 1 and 2) As far as I know, attention has never been called to the latter phenomenon, and it will be referred to below in another connection Roentgenograms of the bones may show the "white line" at the epiphyses first described by Fraenkel, or a thickening of the periosteum However, too great reliance should not be placed on these signs in making an early diagnosis of this disorder, as neither are invariably present

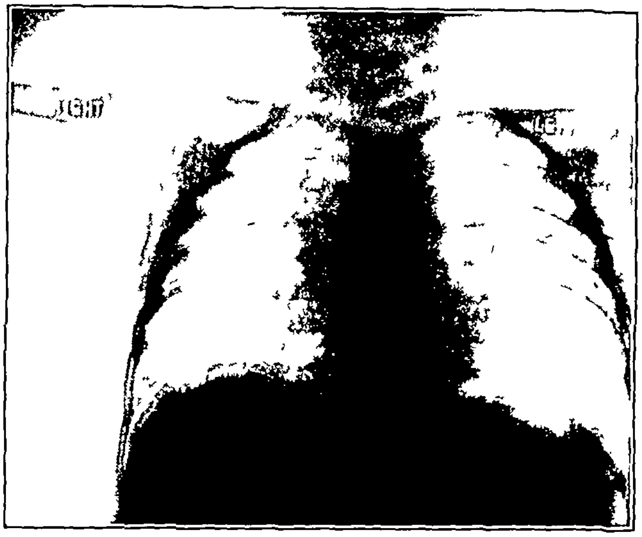

Fig 1—Enlargement of heart especially to the right and broad shadow at the site of the large vessels

An example of a case of subacute scurvy, which in many respects is typical, is the following

Case 1—I F, girl, was admitted when 3 months old, weighing somewhat over 8 pounds She was given Schloss milk, 4 ounces and then 5 ounces every three hours, and did well, weighing 11¼ pounds two months later As she failed to gain for some weeks, although 6 ounces of food were given, it was thought that this might be due to the fact that she was getting pasteurized milk and that she had never received an antiscorbutic Autolyzed yeast was tried as a prophylactic antiscorbutic, as has been described elsewhere[1] in detail This failed to cause a gain When, however, orange juice was substituted for the yeast, a prompt growth reaction resulted, a gain of 1¼ pounds in four weeks Accompanying this lack of gain in weight there were many of the other symptoms enumerated above irritability, pallor, slight tenderness of the lower ends of the femora, albumin and a few red and white cells in the urine The pulse or heart beat was frequently over 150, and the respirations 60 (Fig 3) The diagnosis of subacute scurvy was substantiated by the prompt subsidence of all symptoms when orange juice was given

Among the symptoms mentioned in this case are a pulse of over 150 and respirations of 60 a minute These phenomena were noted in several instances before their significance and intimate relationship with infantile scurvy was realized They were then made the subject of closer observation and were found to occur frequently as early signs of this disorder In one instance of subacute scurvy the pulse could not be counted, and the heart beat was found to be 200 to the minute It should not be thought that this must have been a severe case, on the contrary, the baby was in good condition, did not appear ill, and merely showed some tenderness of the thighs, and red blood cells in the urine as other evidences of its ailment When given orange juice there was a remarkable response in gain in weight and a disappearance of the other symptoms The rapidity of respirations is perhaps a more delicate indicator of this disturbance than the pulse, and has been found to be markedly affected when the latter was merely slightly increased in rate For example, in one instance the respirations were 64, 60 and 64 on three successive days, while the pulse was 124, 141 and 136 in other words, there was a 2 1 instead of the normal 4 1 pulse-respiration ratio The accompanying charts (Figs 3 and 4) illustrate the phenomenon in all its details better than a verbal description There are several points in connection with them to which I wish to call especial attention First and foremost is a reaction which is evident from a glance at either chart, the sharp drop in the pulse and in the respiration rate when orange juice was given This is the essence of the phenomenon, a response which proves that it is dependent on and the result of the scorbutic condition In Figure 4 it will be noted that after orange juice had brought about this reaction, potato was substituted and was able to enhance the effect still further It did this not only as regards the pulse-respiration syndrome, but also as regards the other scorbutic manifestations This is the case which was cited recently[1] to raise the question as to possible differences between the various antiscorbutics, and from which the inference was drawn that they are not *all exactly alike in their chemical nature or therapeutic action* My previous opinion on this question is further

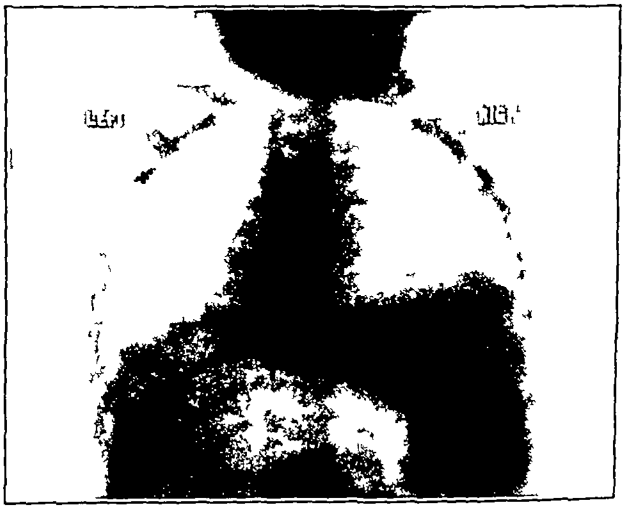

Fig 2—Broad shadow at the site of the large vessels

strengthened by the secondary beneficial results which may follow the administration of vegetables in cases of scurvy in which orange juice has been taken for some weeks (Fig 5) Returning to a study of Figures 3 and 4, we note that on giving orange juice, not only were the pulse and the respiration affected, but the temperature as well It would seem as if this disorder incited a mild febrile reaction, which yielded promptly to antiscorbutic treatment and should therefore be regarded as scorbutic in nature, in other words, as a *scorbutic fever*

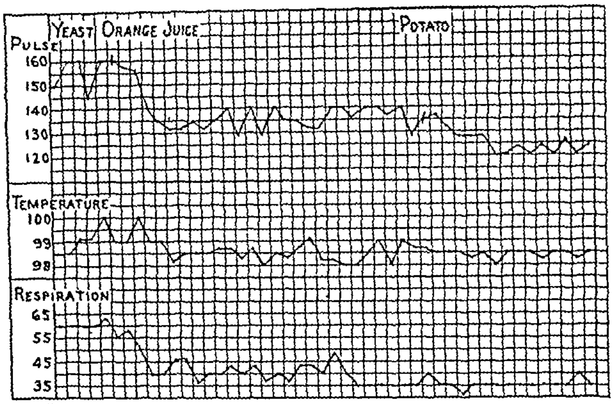

Fig 3 (Case 1)—Chart of I F aged 7 months showing prompt effect on pulse, respiration and temperature of substitution of orange juice (30 c c) for autolyzed yeast (30 c c) and a further response when the former was replaced by potato (15 gm)

There is little to be stated in addition concerning the type of the tachycardia The pulse is regular and moderately strong, and its rapidity is heightened unduly by the incidence of minor intercurrent infections Cardiographic tracings, which were kindly carried out by Dr B S Oppenheimer, showed a simple tachycardia, such as is common to exophthalmic goiter, with the T-wave exceptionally tall in some tracings (Fig 6)

The increase in respirations is a polypnea rather than a dyspnea The baby lies apparently in comfort while the respirations number 60 a minute It is probably due to this lack of visible disturbance, this superficial appearance of normal cardiac and respiratory functioning, that these signs have escaped observation In the comprehensive report of the American Pediatric Society,[6] there is no reference to involvement of heart or lungs

Without doubt this cardiorespiratory syndrome is occasioned by a disturbance of the nervous mechanism controlling this dual system In view of the fact that the action of the lungs as well as that of the heart is affected, there can be no question of the symptoms being attributable to a primary muscular alteration Nor can they be ascribed to anemia In the first paper of this series by Hess and Fish,[1] it was shown that infantile scurvy is generally accompanied by only a mild grade of secondary anemia Furthermore, observations carried out to control this point have demonstrated that poorly nourished infants with more marked anemia have approximately a normal cardiac and respiratory rate Moreover, the fact that these symptoms yield precipitously in forty-eight hours to antiscorbutic diet does away with all questions of their dependence on malnutrition or anemia The phenomenon is clearly neurotic in nature and probably due to an involvement of the pneumogastric nerves We have here, therefore, one more link of evidence that the nervous system is involved in infantile scurvy, and that this disorder should no longer be regarded as affecting only the bones and the blood vessels, or as one characterized clinically by subperiosteal swellings and hemorrhages in various parts of the body Elsewhere[1] I have laid stress on the fact that the optic nerve may show changes, and that it is quite common to find the knee reflexes exaggerated The significance of showing that infantile scurvy possesses an aspect which requires it to be regarded as a disease of the nervous system is interesting in itself, but gains far greater importance when we consider that this association brings it into closer relationship with beriberi, adult scurvy, pellagra and the ever increasing group of disorders which are classed as "deficiency diseases," or, according to Funk, "avitaminosen" In beriberi, as well as in infantile scurvy, there is enlargement of the heart, especially of the right heart,[7] and there are tachycardia, polypnea, and generally increased knee jerks In adult scurvy we find dyspnea, palpitation and hyperesthesia frequently described Attention has been drawn, from time to time, to the close clinical relationship between adult scurvy and beriberi by various observers who have noted cases of these disorders manifesting themselves under apparently identical conditions Only recently this was once more reported by a military surgeon in relation to the troops in Mesopotamia and the Dardanelles[8] In tracing relationship with pellagra, we are treading on disputed ground I would draw attention to the fact, however, that in this disease the pulse is frequently rapid,[9] and also that pathologic and even clinical changes have been found in the central nervous system[10] As is well known, skin lesions are also one of the characteristic signs of pellagra It is therefore worthy of comment that in infantile scurvy, redness of the skin is not infrequently associated with edema over the tibia, this was the case in sixty-nine of the 190 instances of edema

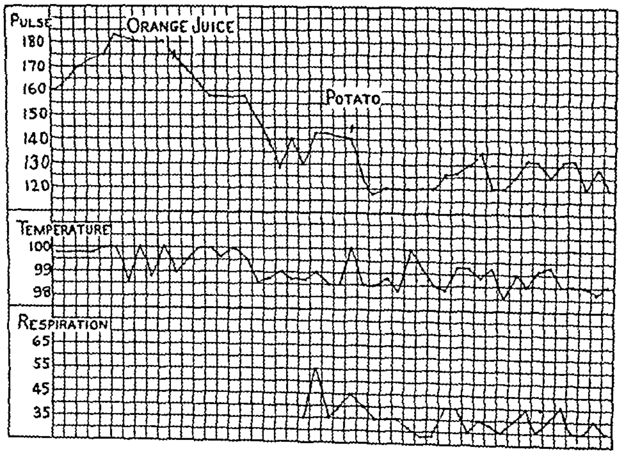

Fig 4—Chart of J G, aged 9 months, howing marked effect of orange juice (30 c c) on the *polypnea* and accessory effect of potato (15 gm) The respirations were not recorded in the early stage of this case

collected by the American Pediatric Society[6] It is also of interest in this connection, that, as has been pointed out,[1] there is an eczema which develops in infants in the course of scurvy which yields promptly to antiscorbutic treatment

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[6] American Pediatric Society Committee Arch Pediat 1898, **15**, 481

[7] In a recent report of Roentgen ray examinations of Russian captives, suffering from beriberi and disorders resembling beriberi, P Reinhard (Arch f Schiffs u Tropen Hyg 1916, No 1, p 20) states that he found primary dilatation of the shadow of the large vessels, especially of the pulmonary region This is similar to the roentgenographic picture which I have described above *occurring in infantile* scurvy

[8] Willcox, W H Beriberi, with Special Reference to *Prophylaxis* and Treatment Lancet *London* 1916 **1**, 553

[9] Ridlon J R Pellagra The Value of the Dietary Treatment of the Disease, Pub Health *Rep*, *1916* **31**, *1979*

[10] Koch M L, and Voegtlin, C Bull 103, Hyg Lab, U S P H S, February, 1916

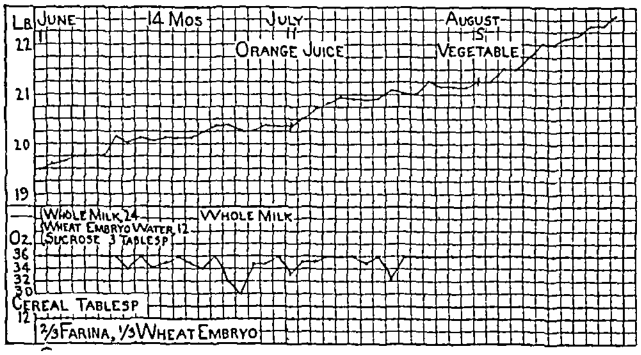

Fig 5 (Case 3) —Latent scurvy in older infant disclosed by therapeutic test child had received both wheat embryo and watery extract of the embryo

It is evident that previous to the onset of scurvy there must be a period during which the equilibrium of the essential substance or "vitamin" is no longer being maintained, but, on the contrary, a negative balance is in progress Although at the onset this abnormal state of metabolism is of no clinical moment, if it continues it gradually brings about a condition of "latent scurvy" This nutritional state may constitute merely an introductory phase to the occurrence of subacute or of florid scurvy It may, however, advance no further, the negative balance may be slight, and the supply of "vitamin" sufficiently great to maintain the body in the latent scorbutic condition for months, until, quite unintentionally, it is brought into equilibrium by the addition of some antiscorbutic food stuff to the dietary Figure 7 is reproduced to illustrate how latent scurvy may remain latent, how it may gradually merge into subacute scurvy and develop no further, and, finally, how the typical gradation may ensue, of latent, subacute and florid infantile scurvy

The diagnosis of latent scurvy is based mainly on the reaction to specific therapy, and on the marked improvement when orange juice, potato or other antiscorbutic food is taken The symptoms themselves are suggestive but do not permit a definite diagnosis In my experience the course has been as follows The infant generally has been from 6 to 9 months of age, and has been fed for a considerable period on pasteurized milk, this may or may not have been prepared with cereal decoction, nor did it seem material whether or not gruels also had been given When about 6 months of age, the baby ceased to thrive, to gain satisfactorily, to look strong and to eat as we should desire The most careful physical examination has failed to solve the difficulty On the other hand, the history of a diet of heated milk and lack of antiscorbutic food, considered in conjunction with the pallor and lack of appetite, the increased knee jerks, and perhaps the cardiorespiratory syndrome, has awakened suspicion and led us to prescribe orange juice, with a view to diagnosis as well as treatment The result frequently has been magical The following case, the weight chart of which is reproduced (Fig 8), is fairly typical of this abnormal nutritional state

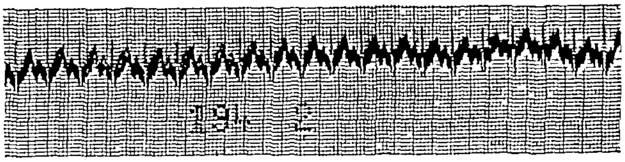

Fig 6 —Electrocardiogram in case showing cardiorespiratory syndrome

Case 2 —H C, boy, born Dec 15, 1915, was artificially fed until admitted to the institution, Jan 4, 1916, when he weighed 6½ pounds He was given 28 ounces of Schloss milk a day (This was prepared from pasteurized milk which was not heated a second time It contains per liter [quart] 140 c c of whole milk, 140 c c of 20 per cent. cream, 50 gm of dextrimaltose, 5 gm of plasmon, 0 2 gm of potassium chlorate, and 700 c c of water) By March 1 he weighed 9 pounds, and gained three quarters of a pound more in the course of this month During April he gained only 4 ounces As will be seen from the chart, there was almost a cessation of gain from April 10 to May 3, although yeast was added to the diet. May 2, orange juice was given The weight advanced at once, the general appearance quickly improved, and an eczematous condition of the face rapidly healed It will be noted from the chart that all this occurred, although the intake of food remained the same

Epicrisis a baby 4 months old with latent scurvy, which had existed since or even before it was 3 months of age

This disorder may occur in older infants, under similar dietary conditions The following case relates to a well nourished, active, contented baby over a year old A diagnosis was impossible from the signs and symptoms, but was suggested by previous experience with the results of a prolonged diet of heated milk (Fig 5)

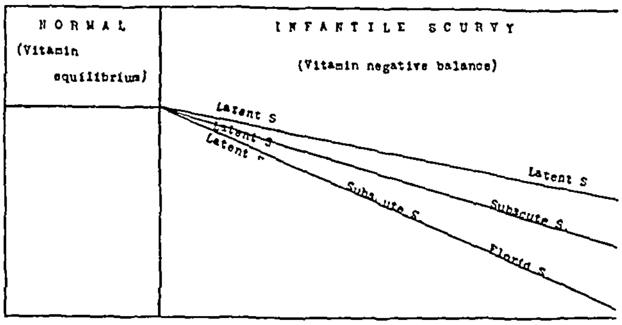

Fig 7 —Various courses which the scorbutic condition may follow according to the degree of negative balance of vitamins

Case 3 —E F, girl, admitted when 4 months old, weighing 9½ pounds, had never been nursed She gained on a mixture of two-thirds milk, and was given orange juice when 6 months of age, and vegetable a month later Feb 1, 1916, when she was 9½ months old and weighed 16½ pounds, orange juice and vegetable were discontinued, and a cereal containing wheat embryo (germ meal) substituted She had grip, associated with otitis and adenitis, during the latter part of February and again in March and the early part of April By May 14, however, she weighed 19 pounds and showed no scorbutic signs whatever About this time the watery extract of the germ meal was added to the diet in place of barley water (12 ounces a day) During June the gain fell off markedly, but the baby appeared well otherwise Whole milk was ordered to offset this in the beginning of July, but did not bring about a gain Then orange juice was added Figure 5 shows the prompt response, which unfortunately was soon interrupted by another grip attack Later vegetable was substituted for orange juice, and occassioned an increase in weight which lasted for many weeks

This condition of latent scurvy is probably the commonest type of the disorder, especiallly in the larger cities where almost the entire milk supply for infants is pasteurized, and it is frequently passed over unrecognized Most infants happily are given orange juice by the time they are 6 months of age, and may receive a small amount of vegetable or potato before they are much older, so that they are protected from serious harm in this way But there is no doubt a considerable number, including those who are peculiarly susceptible, who pass through the state of latent scurvy

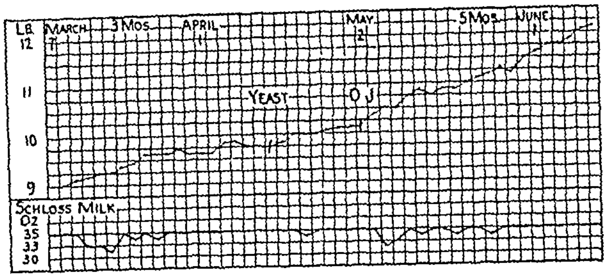

Fig 8 (Case 2)—Latent Scurvy Infant under 4 months of age responding promptly to orange juice (previous failure of autolyzed yeast), quantity and composition of food unchanged throughout

If these cases were included in the computations, we should not class infantile scurvy as a disorder which very rarely occurs during the first six months of life, nor would an experienced observer, such as Still,[4] state that "in no case did scurvy begin before the age of 5 months" An instance has just been cited occuring considerably before this age The lesson taught by these observations is not that fresh milk for infant feeding should not be pasteurized, but that the administration of antiscorbutics should be begun earlier There is no reason based on clinical experience which contraindicates the giving of a teaspoonful of orange juice at 1 month to bottle fed babies, and of gradually increasing this amount to a tablespoonful at the age of 3 months As has been repeatedly shown, there is, on the contrary, a valid reason for urging the adoption of a prophylactic measure of this kind for infants fed on the pasteurized milk as supplied at present

CONCLUSIONS

An exclusive diet of pasteurized milk will frequently induce scurvy in infants It should be well understood, however, that this danger can readily be averted by the mere addition of an antiscorbutic food to the dietary

Probably a large proportion of infantile scurvy is occasioned at present by our pasteurized milk This scurvy is usually not of the classic, florid type It is less pronounced and obvious, and is consequently the form which is least often recognized This type may be termed "subacute infantile scurvy" and is distinguished by a group of incompletely developed symptoms which disappear quickly when orange juice or other specific therapy is given

Another type found to be occasioned by this milk is "latent scurvy" This constitutes a state of malnutrition which develops slowly as the result of a negative balance of "vitamins," It can rarely be definitely diagnosed, except by the sharp recession of symptoms —stationary weight, pallor, poor appetite, etc—following the administration of an antiscorbutic

We should no longer regard infantile scurvy, from either a pathologic or a clinical point of view, as a disorder affecting merely the blood vessels and the bones Roentgenograms show that the heart, especially the right heart, is frequently enlarged, and that there is a broadening of the shadow at the base of the heart, at the site of the great vessels Furthermore, this disorder is associated frequently, even in the mild forms, with a cardiorespiratory disturbance characterized by a very rapid pulse, and respirations which may rise as high as 60 a minute (polypnea) Both of these signs disappear promptly when orange juice or potato is given This cardiorespiratory syndrome is due to an involvement of the nerves Considered in conjunction with the changes of the optic disk, previously described, and the increasing of the knee reflexes, it is evident that the nervous system is extensively involved in infantile scurvy This fact gains added interest in view of the marked involvement of the nervous tissue in other so-called "deficiency diseases," such as adult scurvy, beriberi and pellagra

16 West Eighty-Sixth Street

ASTRAGALECTOMY (WHITMAN OPERATION) IN INFANTILE PARALYSIS*

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BOSTON

It is not my object to discuss more than in a general way the various operative procedures in the paralyzed foot, but rather to emphasize the value of an operation which has stood the test of time, and unlike tendon transplantation, silk ligaments, etc, has been found practical, efficient and permanent in combating the instability so frequently seen in the paralyzed foot It seems to the writer that except for one or two possible conditions in the paralyzed foot, transplantation should be discarded in favor of a procedure giving permanent results in the hands of the surgeon As one compares the results in a series of cases some years after operation, it seems quite remarkable that transplantation of tendons and the use of silk ligaments still persist

Infantile paralysis most frequently leaves its mark in the muscles of the foot where varying degrees of paralysis persist from a mild weakness of one group or a paralysis of one group to a total paralysis of the entire muscle strength below the knee The extent of the disability, however, only rarely coincides with the extent of the paralysis

Weakness, instability of the foot and deformities follow paralysis of one group as frequently as they follow paralysis of all the muscles It is the failure to recognize this fact that tempts the surgeon to use such insufficient means as transplantation and silk ligaments in order to combat deformity in those cases with slight loss of muscle power The normal foot is balanced by muscles working in perfect coordination, assisted by

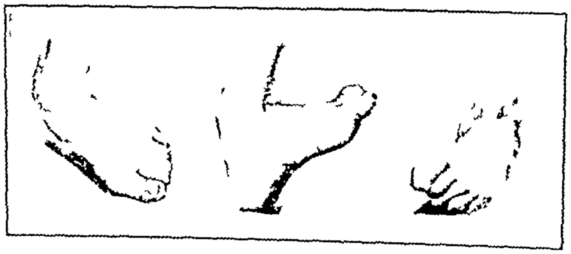

Fig 1—Three of the more common deformities in the partly paralyzed foot

ligaments which check extremes of motion To expect sufficient restoration of balance following transplantation is illogical from a mechanical and physiologic point of view, and in the experience of the writer not based on careful and prolonged clinical observation

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

Our first duty, of course, is to foresee and prevent structural deformity, thereby favoring regeneration and recovery of power

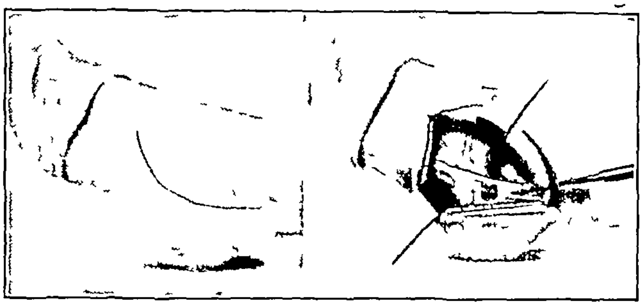

Fig 2 —Astragalectomy — the Whitman operation On left line of incision On right, tendon of peroneus longus exposed tendon of peroneus brevis being exposed

If this recovery does not take place, then we arrive at the point where operative interference must be considered or the patient condemned to a brace for permanent support Here the question arises as to the class of cases in which surgical interference is indicated We must all believe that operative interference should be delayed as long as there is a possibility of a return of power, e g, about one and a half to two years following the initial attack In children, in whom deformity may usually be prevented, my experience leads me to wait longer if the age of 6 or 7 has not been reached In the presence of deformity not easily correctable by manipulation, this age limit may be lowered a year to hasten good locomotion

What operation shall we choose? During the past six years I have used astragalectomy as devised by Dr Royal Whitman[1] in almost all of the deficiencies following infantile paralysis affecting the leg Altogether my series comprises 135 cases, a sufficient number to warrant the formation of definite opinions concerning its value as an operation In short, I may state that it has come to replace the commoner operations of transplantation, silk ligaments and allied operations Astragalectomy gives stability, which is not in my experience obtained by the other procedures, and in addition preserves sufficient motion for good function of the ankle Arthrodesis when successful stiffens the joint and an awkward gait results

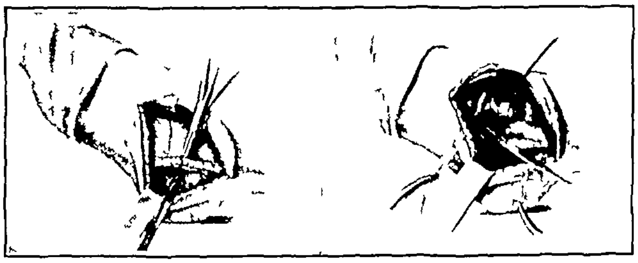

Fig 3 —Astragalectomy — the Whitman operation On left peroneal tendons sutured and divided On right, external lateral ligament divided tibio astragaloid ligament divided, interosseus and external talocalcaneal ligaments being divided

Age —Astragalectomy can be done at any age following a period of two years after the original paralysis, but if possible should be reserved until the child is 6 or 8 years old If, however, deformity is not being prevented by apparatus and if the limp is more than the extent of the paralysis warrants, then I should not wait for this age, for atrophy and shortening go hand in hand with the severity of the deformity and the limp, not with the extent of the paralysis In the period between 6 and 16 years of age the most satisfactory results are obtainable We have done the operation later but find that more sensitiveness and pain are liable to follow, and the results, in spite of good stability, motion and a good posture, are not quite as satisfactory as when done early

Indications —The conditions in the foot for which this operation may be done with benefit are many Probably the most striking results follow its use in the deformity of calcaneovalgus, for which it was originally planned (Fig 1) Here with the shifting of the tibial weight forward, and the transplantation of the peronei into the Achilles, a most striking functional result is obtained But its use cannot be limited to this alone It gives excellent and standard results in all foot conditions — even where only one muscle is paralyzed

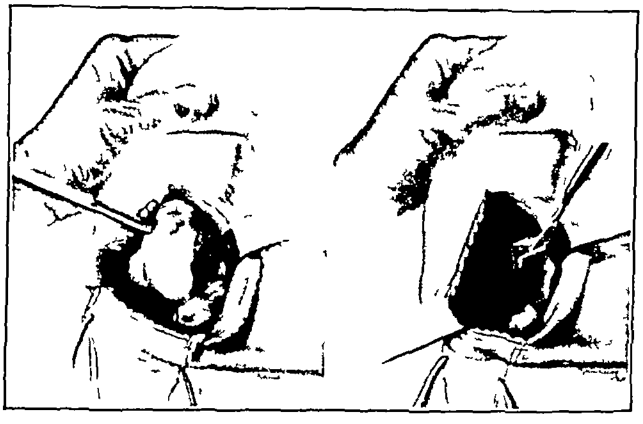

Fig 4 —Astragalectomy — the Whitman operation On left, dislocation of astragalus by strong inversion of foot Note heavy dissector under neck by which astragalus is pried loose head first On right, widening tibia fibular articulation by removal of thin slice of cartilage from internal malleolus

Operative Technic (Figs 2-10) —Here as in other joint operations the asepsis should be guarded carefully and manipulation should be gentle A curved or L-shaped incision is made around the external malleolus, tending forward over the head of the astragalus The upper flap is then dissected upward, exposing the tendons of the peroneus longus and brevis, which are then dissected free and severed just at the fibular tip The ends are caught in No 2 catgut sutures and retracted

An incision is then made through the external ligaments around the astragalus, using especial care about the head of the astragalus The foot is strongly inverted Then by placing a blunt dissector under the neck of the astragalus, the bone is pried out of position head first, and removed At once the ease of displacing the foot backward will be noticed, but in order to insure a good joint a certain amount of modeling must be done

The internal lateral ligament is dissected upward from the internal malleolus, if necessary, a strip of cartilage is removed from both tips to span the scaphoid and cuboid, a small piece is excised from the side of the scaphoid and cuboid to form pockets for the malleoli The foot is then displaced backward and held carefully in this position to insure the proper relations in the new joint A moderate equinovalgus gives stability while holding The peronei are disposed of by suture to the Achilles tendon, by tendon fixation or by resuture to the distal ends of the tendons of the peronei, as indicated in the given case The skin is closed with catgut and plaster applied from the toes to midthigh with the knee flexed and the foot in equinovalgus The leg is kept elevated for a period of ten days, after which crutches may be used The first change of cast takes place in three or four weeks, at which time the equinus is corrected to a right angle in cases of quadriceps paralysis or left in 5 to 8 degrees equinus where the quadriceps is present Valgus should persist throughout the treatment

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[1] Whitman Am Jour Med Sc 1901 **122**, 593 Am Jour Orthop Surg, 1910 1911 **13**, 137 Am Surg 1911 **54**, 860

A leather shoe (Fig 11) is then put over the plaster and the child allowed to walk, changing the plaster as necessary for five to six months Following its removal a shoe with a lift on the outer side of the sole is used A one-half or three-quarter inch cork lift under the heel will compensate for the shortening of the leg and improve the gait Circulation improves rapidly with the return of good function and loss of growth ceases, the paralyzed leg beginning to grow at a rate equal to that of the well side

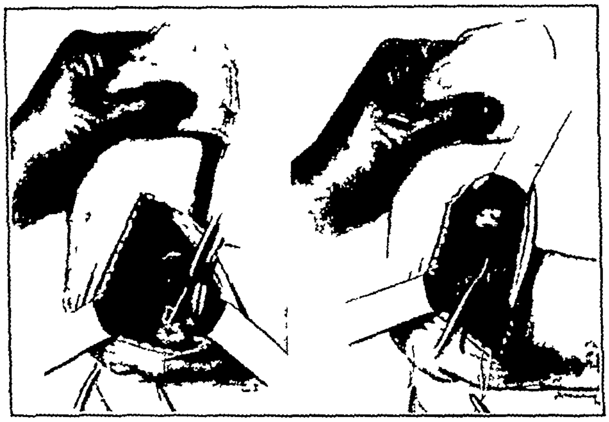
Fig 5 —Astragalectomy — the Whitman operation On left, widening the tibia fibula articulation by removal of thin slice of cartilage from one or both the internal lateral ligament has been dissected up to sharpen the malleolus On right the new articulation for internal malleolus Note removal of inner one fourth to one sixth from inner side of scaphoid thus forming pocket for sharpened internal malleolus

Conclusion—The results obtained with astragalectomy have led me to discard, except in the rare cases, all other procedures

LITERATURE

Various methods for remedying the condition have been devised Amputation of the foot in cases of severe deformity is advocated by Watson[2] I know of no other report on this operation Lange's silk ligaments are advocated by many authors, among whom are Allison,[3] Bradford,[4] Barton and Plummer,[5] and Lovett[6] Rich[7] says that they are of use in joints where there is no external irritation, as there is in the ankles from shoes Here he advocates capsule tucking Nerve grafting is advocated by Spitzi and others The general opinion has been summed up by Feiss,[8] who says there is no experimental evidence to justify its use in paralytic cases Tendon transplantation has its chief advocate in Vulpius[9] Soule[10] advocates arthrodesis of the astragaloscaphoid joint, with the use of a bone peg to aid ankylosis

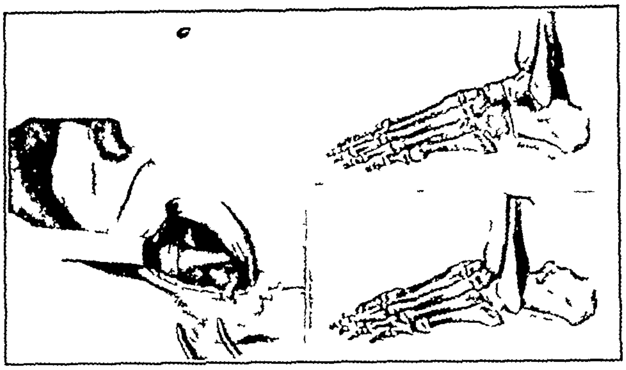
Fig 6 —Astragalectomy — the Whitman operation On left, the external malleolus rests in a similar socket over calcaneocuboid joint Note backward displacement of foot, and fibula carried well forward On right above normal relation of tarsal bones below, relations following the properly done astragalectomy

The operation of astragalectomy was first performed in 1842 by Lund[11] of London for the correction of a very severe talipes, and its use has since been reported by numerous authors, usually in traumatic and infectious cases Willens[12] reports in 1911 its use in cases of clubfoot in an operation devised by him Peraire[13] used it with goods results in a case of traumatic paralytic equinovarus In none of these was the foot displaced backward Its use in paralytic talipes was first advocated by Dr Whitman in 1901 The operation briefly consists of the enucleation of the astragalus, fibro-arthrodesis of the joint, transplantation of the tendons, and the backward dislocation of the foot The cases in which it is serviceable have since been much extended by Whitman Favorable results from the operation have been reported by Dane and Townsend[14] in a series of cases from the Childrens' Hospital, Boston, and also by Lord[15] and others

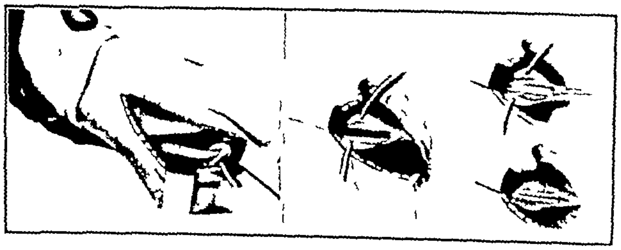
Fig 7 —Astragalectomy — the Whitman operation Disposition of tendons of peronei into the Achilles tendon and resuture and tendon fixation (Galli operation)

The operation has been modified by Robert Jones,[16] who divides it into a two part procedure His method is not much used in this country Tubby[17] modifies the operation by using Lange's silk ligaments to strengthen the Achilles tendon after division

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[2] Watson Brit Jour Surg, 1914 1915 p 390

[3] Allison Am Jour Orthop Surg 1912 1913 p 519

[4] Bradford and Soulter Boston Med and Surg Jour, 1907 **157**, 655

[5] Barton and Plummer Am Jour Orthop Surg 1912 1913 p 499

[6] Lovett Am Jour Orthop Surg 1905 **12**, 405

[7] Rich E A Limitations of Lange's Silk Ligaments in Paralytic Surgery and Substitutes Therefor The Journal A M A Nov 1 1913 p 1597

[8] Feiss Rev neurol and psychiat, **11**, 307

[9] Vulpius Am Jour Orthop Surg 1912 1913 **10**, 272

[10] Soule Tr Am Orthop Assn Philadelphia, 1914

[11] Lund London 1872

[12] Willens Brit Med Jour **2**, 984

[13] Peraire Paris chir 1912 **4**, 294

[14] Dane and Townsend Am Jour Orthop Surg, 1904 **11** 38

[15] Lord J L The Whitman Operation for Talipes Calcaneus Paralyticus, The Journal A M A Oct 11 1913 p 1374

[16] Jones Robert Lancet London, 1914, **1**, 1786

Tendon fixation separately or as an adjunct to astragalectomy has been used by the author in several of his later cases with good results

ABSTRACT OF DISCUSSION

Dr Frederick C Kidner, Detroit I can agree with Dr MacAusland in the use of the Whitman operation, in selected cases, but I cannot feel that so mutilating an operation is necessary in a large portion of paralyzed cases He has spoken of the rapid growth of the foot following the operation because of the restoration of function We know that growth can be stimulated to a great degree by ordinary massage, heat applications and other therapeutic measures Therefore, this argument for the operation is not very strong As to the function, there is no doubt that the strong, firm foot resulting from astragalectomy is a very useful one, but so are many feet which wear light braces or are in moderate valgus or varus To my mind, astragalectomy should be limited to severe cases of paralysis in well grown feet

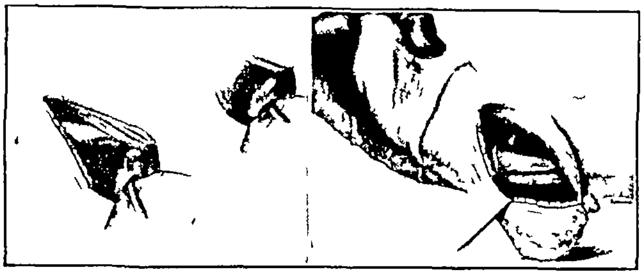

Fig 8 —Astragalectomy — the Whitman operation Disposition of tendons of peronei, into Achilles tendon, and resuture of ends

Dr J D Griffith, Kansas City, Mo It seems to me that we have discarded transplantation of tendons, and that if we are discarding the silk ligaments, we have to come to the Whitman operation Dr Whitman has shown before, and Dr MacAusland is now showing, that this surgical interference is not interfering with growth in length, size or the function of the foot to any great extent In these cases of equinovalgus and equinovarus, particularly valgus with calcaneus, there is nothing left to do but this operation

Dr Albert H Freiberg, Cincinnati A few years ago, Dr Whitman felt that the profession was somewhat tardy in recognizing the value of his operation, and I think that events have fully justified him in his attitude I feel, however, that if he were here today, he would have just as much objection to the trend of events, now that the pendulum has swung too far the other way There is no question in my mind that his operation has great advantage in suitable cases I have used it, and shall use it, I hope, very often On the other hand, it seems to me that there is something wrong with the tendon transplantations of the man who says that tendon transplantations must be given up, to have their place taken by a mutilating operation such as this is, even under most favorable conditions We have learned that we had expected too much of tendon transplantation We have also learned that the complicated procedures had to be abandoned, and that it was not possible to convert a flexor into an extensor, or an extensor into a flexor, ad libitum, because the muscles would fail to respond to unreasonable demands made on them There are certain psychologic problems to which the brain will not respond It seems to me, however, that many of us—evidently not all of us—must have cases of tendon transplantation, done under more or less ideal conditions, which have stood the test long enough to make it impossible to deny the considerable advantages that the patients have received from the operation It is further understood by men of experience that we cannot switch muscles around as we please and sew them down in an insecure way and have the tendons move freely in the proper direction We have learned that in cases in which there is fairly isolated paralysis of the tendons about the foot, we may be able to pass tendon under the annular ligament, the tibialis anticus, for instance, and in that way get an excellent result which will stand the test of time, and produce a foot of a degree of functional perfection that is not at all to be compared with the most delightful result after the Whitman operation, useful as that procedure may be in extensive paralysis

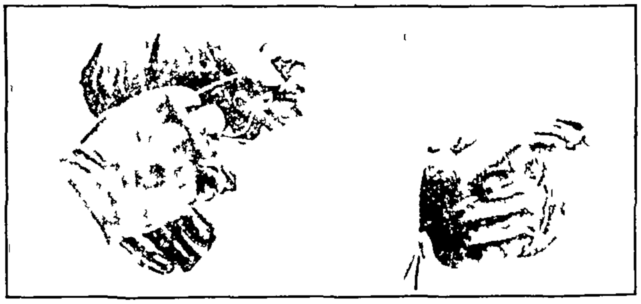

Fig 9 —Astragalectomy — the Whitman operation Note the posterior displacement and the position in which the foot is being held during suture and the application of plaster with the knee flexed and the foot in slight equinovalgus

Dr C M Jacobs, Chicago I want to ask Dr MacAusland what is his average shortening of the limb in his series of cases following this operation I would also like to ask him whether he has done any other operation—say the Galli—for a calcaneus condition I was always in favor of the Whitman operation until I tried Galli's method of inserting the Achilles tendon into a groove on the posterior portion of the tibia My first case, which was done a year ago, gave such excellent result that it led me to discard the Whitman operation for paralytic calcaneus

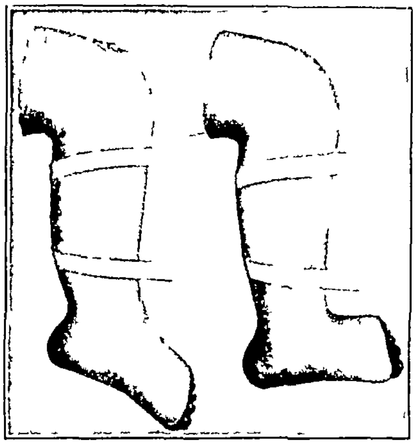

Fig 10 —Astragalectomy — the Whitman operation In plaster following operation

Dr Edwin W Ryerson, Chicago The Whitman operation is a very valuable one, but it is not applicable to every type of paralyzed foot Dr MacAusland goes just a bit too far in this The Whitman operation should not be performed in cases in which there remains strength in the calf muscles The tibia should not be displaced forward on the foot, because a very undesirable degree of equinus is likely to result I have seen this in some cases In cases in which these muscles are strong, one should do astragalectomy, if it is indicated, and should not displace the foot backward on the tibia I consider that tendon transplantation is by no means obsolete, no matter what you may have gathered from the statements that have been made It remains today an extremely valuable, and the only proper, operation for certain forms of paralysis The fact that a foot has simply weakness or infantile paralysis is no more reason for doing a Whitman operation than for extracting the patient's teeth The cases must be considered carefully and individually The Whitman operation is not applicable to certain cases, and should not be done in them The cases in which it is especially desirable are cases in which there is great lateral mobility of the foot, where the foot rests on a very freely movable astragalus and is not stable In cases of dangle foot, the Whitman operation, as performed by Dr MacAusland, is very valuable, and is the best procedure devised, but in cases in which tendon transplantation can be done—and there are many such cases—do not remove an astragalus unless it is necessary I have dozens and dozens of cases in which the results of tendon transplantation are satisfactory to both the patients and myself, and I have other cases in which they are not satisfactory, because we hoped for too much from the operation in the past We cannot cure a foot that is very badly paralyzed by tendon transplantation, but it has a wide field of application in cases of moderate or isolated paralysis Such cases can be treated beautifully in this way, and we should not discard the operation of tendon transplantation, which is a therapeutic resource of the greatest possible value in properly selected cases

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[17] Tubby Clin Jour 1912 1913 **40**, 163

DR. W C CAMPBELL, Memphis, Tenn I have operated in this way in thirty cases with excellent results, but my cases have been selected cases The type of case in which I found the procedure most satisfactory was calcaneovalgus in which there was considerable power remaining in the peroneal muscles Out of these thirty cases, or over I have had two that have had some inversion afterward The inversion has not been severe and has been correctible by tilting the shoe I now always tilt the shoe in such cases I have also employed the method of tendon fixation to the external malleolus and fibula to prevent inversion It is very important to maintain the right position in putting the foot in plaster It should be placed in an overcorrected valgus position as well as in moderate equinus with backward dislocations

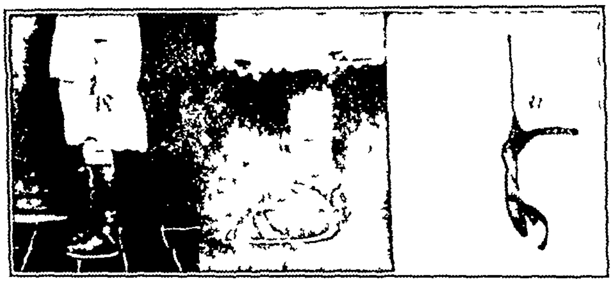

Fig 11 —Shoes to be worn after Whitman astragalectomy

DR J T RUGH, Philadelphia Some of those present saw an operation in Philadelphia about two years ago that combined exactly the same principles as the Whitman operation It has not received the attention it deserves It is the Davis operation and he has chosen to call it "the transverse horizontal section" I have always felt that the Whitman operation was essentially indicated in cases of the calcaneus type of paralysis, and the Davis operation combines the same principles as the Whitman but does not remove the astragalus The disadvantages of the Whitman operation is the increase of shortening, which must be compensated for by tilting of the foot, with slight resulting equinus In the Davis operation a transverse osteotomy is done below the astragalus, that is, between the astragalus and the calcaneus The posterior calcaneo-astragaloid articulation is separated, and the foot is displaced backward and put in the position of slight equinus A tendon transplantation can also be done, or where there is no power in the peroneus and where there is a total loss of the Achilles tendon, I have been doing the Putti operation, cutting off the tendon from the muscle and transplanting the tendon into the tibia a little differently from the way in which it is done in the so-called Galli operation, with excellent results—making an absolute ligament of the tendon

DR R L HULL, Oklahoma City I have done the Whitman operation in from fifty to seventy-five cases This operation was originally devised for cases of calcaneus and calcaneovalgus and it is better for them than any other operation I have done it in a patient 3 years old, and I have done it in adults of 21 and 24 years In every case in which the patient is from 3 to 6 years old, I approach the operation with a great deal of enthusiasm, because I know that I can give the patient the best possible functional result—better than from any other operation or series of operations Recently I have been a little more radical, and have been doing it in a few cases of varus and equinus It is impossible to know yet what the end-results will be, but at present it has seemed to meet the indications better than any other operation with which I am familiar

DR C B FRANCISCO, Kansas City, Mo In 1907 I assisted Dr Whitman in adding fifteen or sixteen cases to his original report Naturally, I have been very much interested in his operation ever since I think that if we had an operation that met the requirements in every case of deformity of the foot as well as the Whitman meets those of the calcaneovalgus deformity, we should be glad to adopt it I know what the result will be when I do this operation You can tell absolutely what you will get—what motion You will get from one third to two thirds of the normal range of motion in children under 10 years You also know pretty definitely what the foot will look like In the badly paralyzed cases, you know that there will be a little cavus, and it will take a while for the foot to flatten out, but you have no hesitancy about recommending it When you get into the varus type that, to me is the hardest deformity that I know of to cure and have stay cured One of the most distressing things is to manipulate and resect and do everything you know how to and get good position and then turn the patient out and lose track of the case, only to have the child return, a year or so later, with the deformity as bad as ever, so that you feel that you have done harm instead of good I have not, so far, used the Whitman operation in the varus type, as I am now trying out the Galli method of fixation of the peronei I believe that there are certain cases of varus in which the Whitman operation will prove satisfactory, as indicated by Dr Ryerson, the lateral movement type The operation does away with that I think that Dr MacAusland is to be congratulated on having brought the subject before us

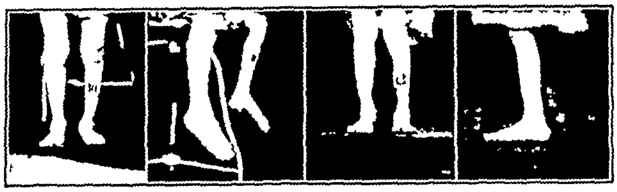

Fig 12 —Infantile paralysis valgus deformity From left to right anterior view before operation lateral view before operation anterior view twenty months after astragalectomy and lateral view twenty two months after astragalectomy

DR W RUSSELL MACAUSLAND Boston The proof of the pudding is in the eating I have not heard any one advocating the value of tendon transplantation without saying, 'In almost every case," or a similar qualifying remark I can say what my results have been in astragalectomy In one hundred and thirty-five cases, there have been only three cases of varus This is a very difficult deformity to overcome when it does occur, and it should be guarded against carefully These cases of varus all occurred in patients living out of town, some of the postoperative treatment being left to assistants The important thing is to put the foot up in valgus and slight equinus I keep the valgus during the entire treatment,

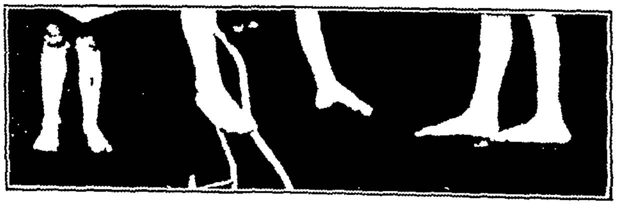

Fig 13 —Infantile paralysis calcaneovalgus deformity Anterior view before operation lateral view before operation and lateral view twenty months after astragalectomy (Whitman)

correct the equinus when the quadriceps is gone, and retain plantar flexion of five to eight degrees when the quadriceps is present Dr Freiberg's remarks carry considerable weight His results from tendon transplantations and those of many others which have come under my observation in Boston are not satisfactory I have also looked up the results of arthrodesis in young children, and found that in 90 per cent of the cases the old deformities recur or new ones appear If tendon transplantation does not add to the stability of the foot and increase its function, it is not the best operation When we take a tendon from one place and put it in another, we weaken the tendon and also weaken the side that it came from, and put it where it never can act to its full strength I did not say that I used the Whitman operation in every case If by tendon transplantation any of the surgeons here can obtain correction of the deformity, universally, increase function and secure stability, then it is certainly an operation for them on a par with astragalectomy Dr Jacobs asked about the average shortening that I obtain Astragalectomy does not shorten the leg The shortening in my cases was about ½ inch to 1½ inch In cases with the os calcis vertical the malleoli naturally lie nearer the ground following astragalectomy The Galli operation has undoubtedly a prominent place in the treatment of infantile paralysis Up to the present, however, my experience has not been such that I care to make any statements about it I shall not do so until I have formed definite conclusions Dr Ryerson says that the pendulum has started to swing too strongly in the direction of astragalectomy Dr Whitman has tried to impress the value of astragalectomy as compared with tendon transplantation before, and failed With regard to this operation it is on a similar plane with all the other surgical procedures that he has advanced Nothing has been found as a substitute for them Dr Campbell spoke of inversion I had that happen in three cases These inversions are very objectionable deformities I was able to correct them by placing the fibula further forward, holding it there by means of the Galli operation, suturing the peroneal tendons into the fibula These patients are all right now

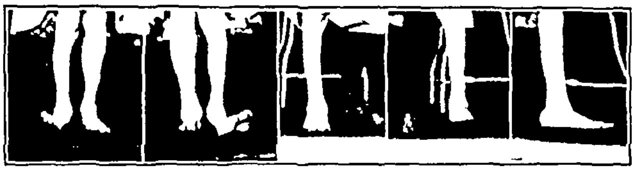

Fig 14 —Infantile paralysis calcaneovalgus deformity operation May, 1912 Anterior view before operation posterior view before operation, anterior view six months after astragalectomy (Whitman), posterior view six months after operation, and lateral view six months after operation

INTESTINAL OBSTRUCTION DUE TO ASCARIS LUMBRICOIDES

REPORT OF A CASE

J MAXIME PERRET, M D,
AND
H THEODORE SIMON, M D
NEW ORLEANS

In the latter half of the nineteenth century, opinion was divided as to the possibility of *Ascaris lumbricoides* being the etiologic factor in intestinal obstruction, thus, Leichenstern and Treves opposed this view, while Trousseau, Bretonneau and Stutz[1] upheld it, each having been among the first to report cases

Bordoroni and Stepp in 1887 reported two cases, both of which were confirmed postmortem

Simon,[2] in 1892, while holding a necropsy in a case of intestinal obstruction, found the cause to be a mass of roundworms

Botoff,[3] in 1897, reported a case of obstruction, perforation and peritonitis, in which the postmortem revealed the presence of 500 roundworms

In 1899, Taylor[4] found sixty-six worms in a case of intestinal obstruction

Zotoff[5] reports a case of Mosler and Peiper of a 3 year old girl who died of peritonitis with two perforations in the ileum, 17½ inches from the cecum, through one of these openings twenty-five roundworms projected, the ileum between this point and the cecum, ascending colon and transverse colon were completely filled with roundworms, numbering 500 in all

Van Meter[6] reports a case of a child aged 5 years, having a sausage-like mass above and to the left of McBurney's point, in which operation revealed in the lower part of the ileum a coil of roundworms causing complete obstruction, the author says that there were almost enough parasites "to fill a wash basin", the patient recovered

A case, reported by Venning,[7] of a 2½ year old boy who was operated on and died, was diagnosed before surgical intervention by palpation of the intestinal masses through the abdominal wall, 273 worms were removed, the site of obstruction being the jejunum, *ileum and cecum*

Vickery[8] was called to see a pregnant woman with symptoms of intestinal obstruction and a history of vomiting several roundworms, on being given a dose of sanotin, followed by castor oil, she vomited twelve roundworms The symptoms of obstruction disappeared, and excepting for the sudden termination of gestation, she made an uneventful recovery

Takaki[9] reports a case of acute obstruction in a 3 year old child with complete recovery following the vomiting of 115 roundworms

Having consulted the records of Charity Hospital in the ten years from 1906 to 1916, we find 112 cases of intestinal obstruction, in ninety adults and twenty-two children, and of these, there is but one case in which the roundworm is the etiologic factor The patient was a young negro girl who was operated on for obstruction A portion of the intestine was filled with a mass of worms The condition necessitated a resection of the intestine, and a Murphy button was used, shortly afterward, after some apparent improvement, the child died, and necropsy revealed the presence of a roundworm in the lumen of the button, which it occluded

REPORT OF CASE

History—M M, white girl, aged 8, was admitted to a surgical ward on the evening of March 14, 1916, having been referred by an attending physician for surgical *intervention* of what he rightly diagnosed acute intestinal obstruction The family history was of interest, as the patient's five sisters and brothers had passed roundworms on many occasions The past history was negative except that the child had frequently passed roundworms since the age of 2

Five days prior to admission, the child was suddenly taken ill with a pain in the right lower abdominal quadrant, and slight elevation of temperature On the second day she began to vomit, and this continued up to the time of admission The vomitus consisted of a clear watery fluid A dose of castor oil was given the second day and only a very small stool passed, with no more bowel movements until she came under our observation

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[1] Huber, J C, Trousseau, Bretonneau and Stutz in Twentieth Century Practice of Medicine

[2] Simon Rev med de l est, 1892 p 228

[3] Botoff Jour d clin et thérap inf, 1897, No 10

[4] Taylor Am Jour Obst 1899, p 808

[5] Zotoff in Nothnagel Encyclopedia of Practical Medicine

[6] Van Meter, B F Intestinal Obstruction Due to Roundworms Surg Gynec and Obst 1909 8 409

[7] Venning, R E Intestinal Obstruction from Ascarides Lumbricoides The Journal A M A, June 18 1910 p 2041

[8] Vickery D H Intestinal Obstruction Due to a Coil of Worms Brit. Med Jour 1913 2 1534

[9] Takaki Y Sei I Kwai June, 1915

TEMPERATURE, PULSE AND RESPIRATION

Time	Temperature	Pulse	Respiration
On admission	101	120	25
Four hours later	103	112	30
Eight hours later	102 4	116	26
Twelve hours later	99 6	100	24

Physical Examination—The child was poorly developed and nourished The skin was of a slight sallow tint The glands in neck and groin were enlarged The eyes were sunken, with dark hollows under the orbits The teeth were badly kept The tongue was dry and coated The throat, nose, ears and heart were negative Coarse mucous rales were heard over the lower half of the right lung, both anteriorly and posteriorly The abdomen was distended and tympanitic, there was no rigidity In the left lower abdomen, in the region of the sigmoid, a mass the size of a large lemon was palpated The viscera were not palpable The extremities and reflexes were negative

Laboratory Reports There was a total white blood count of 16,800 per cubic millimeter The differential white count revealed lymphocytes, 21 per cent, endothelial leukocytes, 3 per cent, neutrophils, 67 5 per cent, eosinophils, 8 5 per cent Examination of the urine revealed albumin and sugar, negative, indican, strongly positive, microscopically, a few leukocytes

After the examination a purgative enema was given, and returned colored with fecal matter and containing a mass of approximately forty roundworms, coiled and interwoven together, the size of a child's closed fist A second enema was given and returned highly colored with fecal matter The distention was relieved, and excepting for a rise in temperature the first eight hours, the patient's condition improved, and in twelve hours the temperature was but 99 6 F The patient continued to improve and excepting for an acute bronchitis, which she developed on about the seventh day, made an uneventful recovery, and was discharged as cured, April 2, 1916

Mass of approximately forty Ascarides lumbricoides × 1½ expelled in a case of acute intestinal obstruction

SUMMARY AND CONCLUSIONS

We find that although the disease is rare, there are quite a few cases of intestinal obstruction due to roundworm

Most cases are diagnosed at necropsy or on the operating table, and only seldom is the mass of worms expelled through the natural channels

Although the most drastic purgatives may be of no avail, the enema may in a few cases cause the surgeon to lay aside his knife

Charity Hospital

The Dairy Cow—The dairy cow has been aptly called the foster mother of the human race—Hon E S Brigham, *Bulletin*, Vermont State Board of Health, Dec 1, 1916

MECHANICAL PROBLEMS OF BRONCHOSCOPIC AND ESOPHAGOSCOPIC FOREIGN BODY EXTRACTION *

CHEVALIER JACKSON, M D

PITTSBURGH

In dealing endoscopically with foreign bodies lodged in the larynx, trachea, bronchi or esophagus, it is fundamentally necessary to remember that the problem is not simply to remove the foreign body but to remove it with little or no risk to the patient It is always necessary to remember that a patient is far safer with a foreign body in his air or food passages than he would be if the intruder were ruthlessly torn out at all hazards Ruthless withdrawal is comparable to the act of the ignorant farmer who hitches a team of horses to the malpresented calf Only in the rarest instances is immediate removal necessary, and it is far better to desist at once if at the first bronchoscopy it is found that special instruments will need to be devised to remove the intruder On the other hand, it is never wise to make the first bronchoscopy without having prepared beforehand everything that can possibly be needed so far as it is possible to foresee from a study of the roentgenogram, history, symptoms and physical signs

The experience resulting from the encounter with foreign bodies of almost all conceivable shapes and substances has resulted in an armamentarium which probably can deal with all kinds of foreign bodies When the bronchoscopist first catches sight of a foreign body for which he has been searching, the temptation to seize it by whatever part is visible and to pull on it with all the strength of which his forceps are capable is very great, and one might say that the temptation is greater directly as the duration of the search

Yielding to this temptation has been the cause of more mortality in foreign-body bronchoscopy and esophagoscopy than any other single factor Moreover, hasty, injudicious traction of this kind will very often not only fail to remove the foreign body but will so complicate the situation as to render subsequent removal exceedingly difficult In other words, the mechanical problem is converted from a very simple into a very complicated one, just as pulling on a tangled mass of string will render subsequent disentanglement difficult or impossible Therefore, it may be stated that there are three reasons why the study of the mechanical problems of foreign-body extraction constitute the most important study in foreign-body endoscopy

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

These three reasons are 1 Attempted endoscopic removal of a foreign body by seizure, followed by traction without proper study of the mechanical problem, ends in a high percentage of mortality

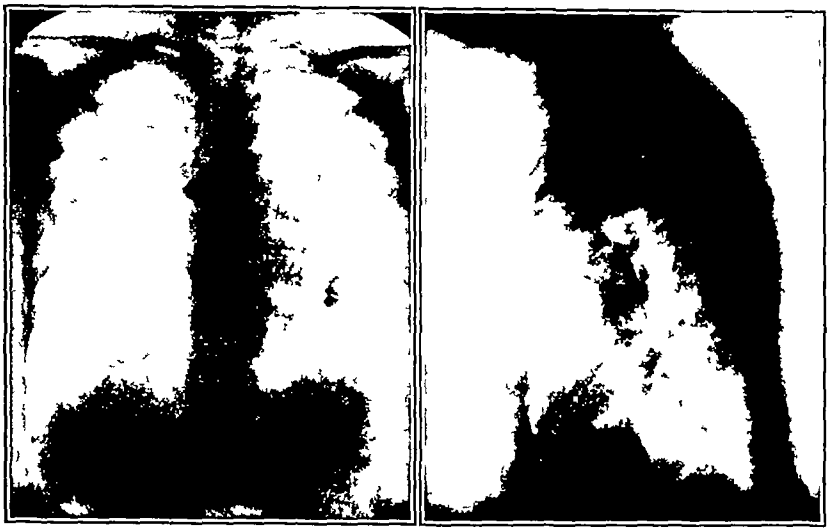

Fig 1—Roentgenogram showing an iron casting in the right bronchus of a child of 8 years The movements of the casting are shown in Figure 3 Foreign body removed by peroral bronchoscopy without anesthesia

2 Such attempts frequently fail to remove the foreign body

3 Such attempts frequently complicate the problem so as to render subsequent removal exceedingly difficult, converting an easy problem into a difficult one, or even into one impossible of endoscopic solution

Fig 2—Iron casting (actual size) from a blind roller shown in Figure 1 The hard smooth conoidal end, presenting in a tightly fitting ring of swollen mucosa, rendered difficult the finally accomplished seizure of the stem below the conoidal end

The following considerations of solutions of mechanical problems are based on the successful endoscopic removal of foreign bodies from the esophagus, larynx, trachea and bronchi, in 543 out of 550 cases (98 7 per cent) In the 550 cases, seven patients (1 3 per cent) died within a week In six of these the patient was in bad condition when admitted In only one of the seven could the death be attributed directly to the bronchoscopy The parents refused to allow a postmortem, so the cause of death could not be determined In a large proportion of the 543 successful cases, removal had previously been unsuccessfully attempted by others That success attended the efforts of Dr Patterson and myself was due not to greater skill, nor to superior instruments, but rather to the careful study of the mechanical problems involved and to the avoidance of the dangers hereinafter pointed out Some of the previously described solutions of mechanical problems are merely mentioned in connection with later statistics which confirmed the value of the methods There is much overlapping of the groups of statistics because of many cases presenting a combination of two or more problems, each of which was separately solved according to its class

The Advantages of Small Tubes—In the solution of mechanical problems of foreign-body extraction, the advantages of small tubes are not generally realized For general purposes, such as the diagnosis of disease, finding of a small foreign body without risk of overriding, etc , the largest possible tube has great advantages, but in the working out of difficult problems of endoscopic foreign-body extractions, the small tube has advantages that make all the difference between success and failure As will be seen in Figure 11, a tube (*A*) that fills the entire lumen of the esophagus or bronchus has no lateral range of motion, while a relatively small tube (*B*) has a very useful range of movement The value of this lateral movement is realized when it is remembered that endoscopic tubes are rigid, whereas endoscopic instruments other than tubes are necessarily long and slender, hence the distal ends are not susceptible of a useful degree of lateral movement The forceps *C* cannot be moved with any useful degree of control from *D* to *E*, whereas the forceps *F* can be energetically moved from *G* to *H* by lateral movement of the tube, *B*, because of the smallness of the endoscopic tube, *B*, relative to the esophagus, bronchus or trachea, as the case may be We may say, then, that forceps in a large tube have no useful lateral range of movement, while tubes small in diameter relative to the diameter of the esophagus or bronchus have a lateral range of movement that is in some cases indispensable to success

Motion of Foreign Bodies in the Bronchi—An important factor which must be always in the mind of the endoscopist in working out the solution of a mechanical problem of foreign-body extraction is that the foreign body is never still a moment The movements are bechic, respiratory and pulsatory All of these movements in many cases greatly increase the difficulties of removal, in other cases the movements can be taken advantage of to assist the bronchoscopist An instance of the latter may be cited in the case of a long foreign body, such as a pin, completely hidden in a small bronchus into which the bronchoscope cannot enter but from which the point of the pin may be protruded during bechic, respiratory or pulsatory movement (Fig 10) More often, however, these movements are a great hindrance not only by the fact

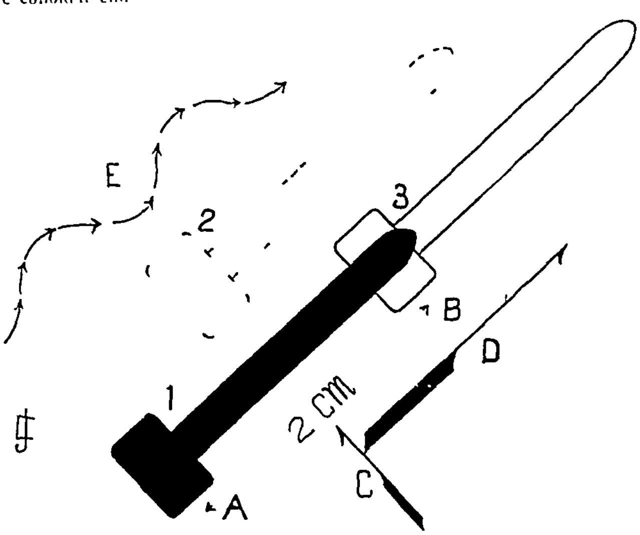

Fig 3—Schema illustrating the normal respiratory and pulsatory movement of the bronchi along with bodies contained therein There is also in case of bodies free to move, a movement of the foreign body with relation to the invaded bronchus during cough respiration, etc

that they keep the foreign body in motion, but that they all tend to bury the point of sharp pointed objects The respiratory and pulsatory movements are really in many planes, but the chief movements noticed by the bronchoscopist in all cases of foreign bodies in the larger bronchi is the to-and-fro motion toward and from the bronchoscope, chiefly in the bronchoscopic axis Advantage can be taken of this movement so to place the bronchoscope that the point of a pointed foreign body may enter the tube mouth In doing this it is very necessary to remember that the recession of the foreign body will withdraw the point out of the tube mouth unless the tube mouth is, at the proper moment, inserted far enough down over the foreign body This maneuver concerns foreign bodies whose points are free when first approached or have been freed as the first stage of the solution of the mechanical problem In addition to the more or less axial movement of the foreign body there are also a number of lateral movements, though these may be more or less hindered by some degree of opposition on the part of the bronchoscope

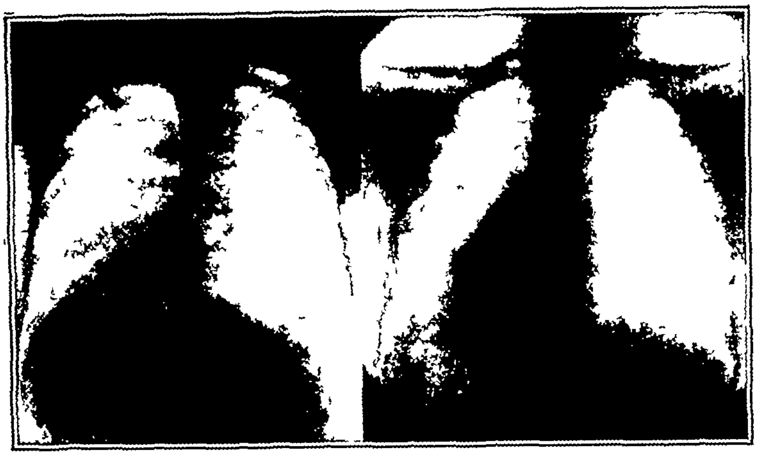

Fig 4—Roentgenogram showing obstruction of the left inferior lobe bronchus, by a Greek peanut (pistachio) shell, in a girl of 8 years When such a shadow is seen we may know that we shall have to deal with a foreign body fitting tightly and corklike in a bronchus There is shown compensatory emphysema of the right lung and also of the left upper lobe The right hand roentgenogram shows the disappearance of the triangular shadow after the removal of the pus and the obstructing foreign body, by bronchoscopy, without anesthesia, general or local (Plate made by Drs Johnston and Grier Author s case)

Fig 5—Shell of pistachio nut removed by per oral bronchoscopy without anesthesia The broad surface was found presenting requiring version to present an edge for seizure

Dr George C Johnston thus describes the various movements as seen fluoroscopically in a case of the author (Figs 1 and 2)

> The foreign body, which is 1 cm in diameter by 3 cm in length, is observed to be in constant motion The foreign body was seen to move 2 cm up and down at each excursion of the diaphragm The excursions of the foreign body are downward and outward, upward and inward In addition there is a constant lateral motion of the foreign body synchronous with the cardiac impulse The foreign body is never at rest The least amount of motion is found at the instant of full inspiration

These movements I have endeavored to represent schematically in Figure 3 They are represented in one plane only It is necessary to remember that there is a similar movement, though of less excursion, in many other planes

PROCEDURE

The various steps in the solution of the various mechanical problems of foreign-body extraction, as practiced in the author's clinic, are as follows

1 Roentgenographic study
2 Preliminary working out of a mechanical problem, based on the probabilities as deduced from the Roentgenographic study
3 Endoscopic study

Roentgenographic Study of Mechanical Problems of Endoscopic Foreign-Body Extraction—The marvelous advances in roentgenography have wonderfully simplified the solution of mechanical problems of the disimpaction and removal of foreign bodies The roentgenologist now usually produces a roentgenogram which shows not only the foreign body but sufficient outlines of the bronchi to enable the endoscopist to formulate a plan of disimpaction and removal that will be correctly based, according to the experience in the author's clinic, in about two thirds of all cases in which the foreign body is opaque to the ray In case of foreign bodies not opaque to the ray, their presence can often be determined almost certainly from the visible pathologic sequelae, yet this does not aid in the solution of the mechanical problem further than to indicate *in certain instances* (Fig 4) that complete obstruction of a bronchus means a tightly fitting, corklike impaction of the foreign body in the invaded bronchus In all cases roentgenographic study should include an anteroposterior and a lateral roentgenogram In some instances aid will also be obtained from a roentgenogram taken in the quartering lateral position, but in no instance should this take the place of the lateral, and in any case great care is necessary to prevent the quartering roentgenogram from confusing the endoscopist's mental conception of the position of the foreign body as gained from the anteroposterior and the lateral roentgenogram, taken as nearly as possible on planes perpendicular to each other Fluoroscopy cannot take the place of a roentgenogram, because, as a rule, the trachea and main bronchi cannot be seen on the fluoroscopic screen, and many bodies of borderline opacity are visible roentgenographically though invisible fluoroscopically

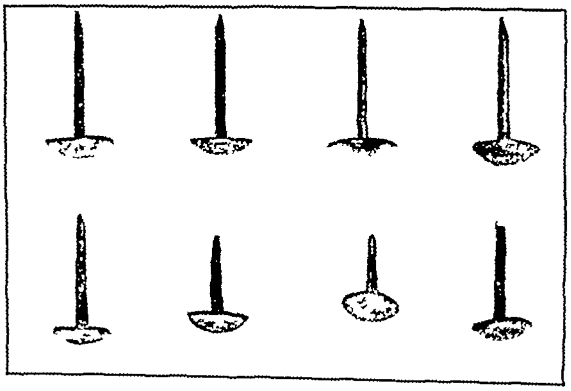

Fig 6—Upholstery tacks from the bronchi (eight cases) The removal of these presented the mechanical problem of the mushroom anchor

Prearranged Plan—Given good lateral and anteroposterior roentgenograms showing the size, shape and position of the foreign body, a knowledge of the duration of the sojourn, and a previous experience with a similar foreign body, a preliminary plan of extraction can be worked out, and in most cases such a plan will be found successful If, however, the intruder has been injudiciously pulled on, preliminary plans are usually useless, nothing but local endoscopic study will avail

Endoscopic Study—The region of the foreign body should be approached carefully so that the tube mouth or secretion swabs shall not touch the foreign body until after the size, shape and, particularly, the position of the intruder relative to the bronchial wall, are studied Careless swabbing may force the foreign body downward In the larynx, to justify an endoscopic study before seizing the foreign body, the patient must be in the author's "low head" position, so that if dislodged the intruder will not drop downward into the deeper air passages In using this position the author has a number of times released and regrasped a foreign body in the work of disengaging the point or otherwise solving the mechanical problem presented by the removal of the foreign body with the least possible trauma

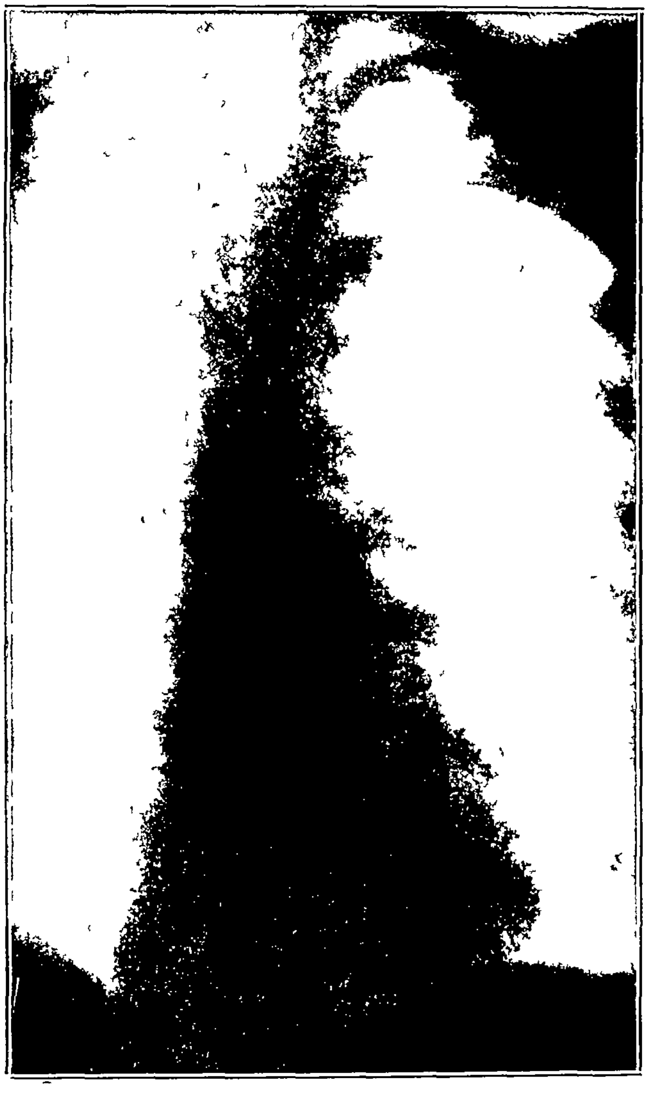

Fig 7—Roentgenogram showing a bit of wire from an egg beater in the esophagus where it had lodged while the patient was eating custard pie The hooked ends do not show because the bends are in the sagittal plane

MECHANICAL PROBLEMS

Objects Presenting a Thick Conical End—These often present great difficulty of grasping because the forceps are prone to slip both sidewise and longitudinally Forceps whose jaws are slightly cup-shaped have less tendency to slip sidewise, and those with properly made teeth will usually hold if the jaws are sufficiently far down on the object, as for instance was done in case of the foreign body illustrated in Figure 2 This is not often easy to do in case of thick foreign bodies because the proximity of the bronchial walls prevents proper expansion of the forceps' jaws The difficulty is much increased if the intruder has been in situ sufficiently long to permit of swelling of the superjacent bronchial mucosa, and the difficulties may be enormously increased by trauma of previous attempts

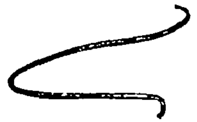

Fig 8—Wire removed by peroral esophagoscopy from the esophagus of a woman aged 57 years Removed by peroral esophagoscopy without anesthesia general or local The object is turned partly edgewise to show the hook shaped ends which presented the great difficulty in removal

Irregular Objects—These frequently present in such a way that they require turning so as to present a favorable surface for the grasp of the forceps For instance, the peanut (pistachio) shell (Figs 4 and 5) presented its concavity toward the tube mouth The shell was turned so as to present its edge for the grasp of the forceps Watermelon seeds (Fig 12) in many cases require to be thus turned Version is one of the most frequently required procedures in the solution of endoscopic mechanical problems

Sharp Pointed Bodies—All sharp-pointed, more or less straight bodies, such as needles, pins, nails, tacks, etc, have strong tendencies (1) to become embedded at the point, (2) to become transfixed crosswise, and (3) to work lower and lower into the air passages by a ratchet-like action The mechanical problems of their removal have been elsewhere gone into quite extensively by the author and need not be reconsidered here In general, however, it may be stated that the pulling on such bodies almost invariably results in crosswise fixation or fatal laceration of the bronchi, with failure to remove In all cases the position of the foreign body should be carefully studied with a view to getting the point disimpacted and into the tube mouth before any traction whatever is made Quite frequently the disengaging of the point requires the pushing of the foreign body downward so as to withdraw the point from the wall in which it is embedded by bechic efforts at expulsion in the case of the air passages, and by the pressure of food in swallowing in the case of the esophagus

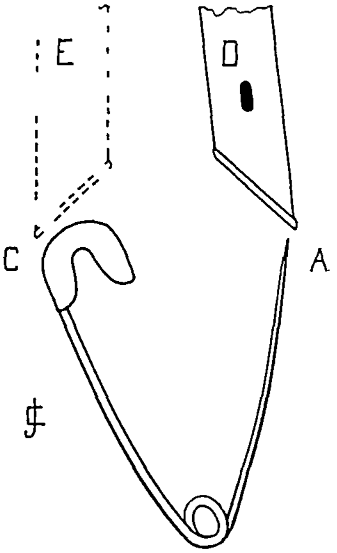

Fig 9—The problem of the safety pin Twenty seven safety pins have been endoscopically removed from the larynx trachea bronchi and esophagus in the author's clinic, by this and other peroral endoscopic methods

Transfixed Foreign Bodies—Both points being embedded, these bodies usually require very careful handling, otherwise attempted removal will be quickly fatal They are quickly and safely dealt with by the methods elsewhere described, which have been uniformly successful in sixty-four cases Many of the cases presented other problems in addition to the problem of transfixion

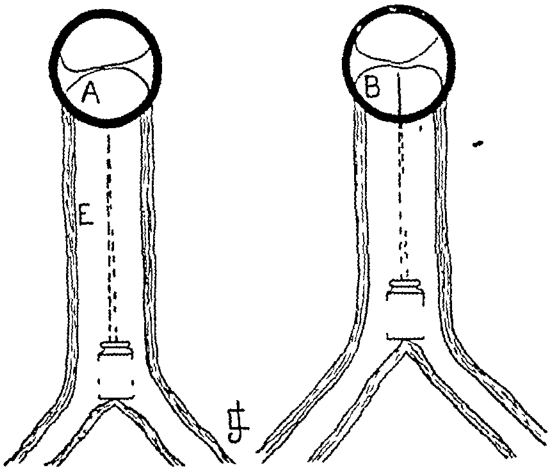

Fig 10—Schematic illustration of bechic aid in revealing a foreign body in a bronchus The dental instrument, *E*, was entirely contained in a small branch bronchus so as to be entirely invisible to the broncho scopist looking down the stem bronchus, *A* When the patient coughed the altered position of the bronchi caused the point of the dental instrument to emerge into the lumen of the stem bronchus as shown at *B* whence it was easy to remove with forceps

Safety Pins, Open, and Point Upward—The most important utilization of the roentgenographic study is for the endoscopist to get a mental picture of the position of the foreign body with reference to the approach of the endoscopic tube For instance, if the esophagoscopic tube is allowed to approach the foreign body without any previous study of the problem, it will usually, in the case of safety pins, present to view first the keeper end of the pin as shown at E, C, Figure 9 If, however, the endoscopist from previous study knows that the point *A* is, for instance, outward to the left, he bears in that direction with his tube mouth, as shown at *D*, with the result of bringing into view the point, *A*, or, if this is buried, the shank of the pointed end as near as possible to the point This enables the endoscopist to solve the safety pin problem in one of the simplest ways, by seizing the pointed end of the pin, *A*, drawing it within the tube mouth, when traction will be relatively safe, as compared to traction on the end, *C*, which will almost invariably prove fatal from perforation of the esophagus, by the point, *A* Practically the same problem is presented when a safety pin has lodged in a bronchus, especially if, as in one of the author's cases, the point, *A*, had entered far into a lateral branch In one of the author's cases, the safety pin had lodged in the right bronchus with the point of the pin projecting into the right upper lobe bronchus completely hiding from view all of the shank, *A* The problem was solved by closing the pin by use of the well-known tilting ring and push fork instrument In case of esophageally lodged safety pins, the best method in the author's experience has been the one that in the Pittsburgh clinic is called "endogastric version" We have had altogether 27 cases of safety pins, 16 being in the esophagus, 2 in the trachea, 1 in the bronchus, and 8 in the larynx Of the esophageal cases 5 were closed before removal, 4 were removed by protecting the points with the tube mouth (Fig 9), and 7 were removed by endogastric version All of the patients were discharged cured Our "follow up" system discovered that in one case the child was taken suddenly ill about ten days after leaving the hospital, and died, the exact cause of death not being determined In this case the pharynx and larynx had been found, at esophagoscopy, to have been very badly lacerated from the attempts of the parents with their fingers to remove the safety pin The esophagus showed trauma caused by blind efforts with forceps and bougie before coming into the clinic No postmortem was made

Upholstery Tacks—These (Fig 6) usually lie point upward with the head buried in swollen mucosa, presenting the "mushroom anchor" problem, the solution of which has been elsewhere described It may be stated that our recent cases have brought the total up to eight cases

Double-Pointed Tack—One of the most difficult problems to solve is that of the double-pointed tack, the points being upward and buried in the swollen mucosa In the esophagus the most serviceable method is that of endogastric version, as with safety pins In the air passages version, is much more difficult, but can be accomplished by very patient work The technic has been previously described[1] We have had six cases of fence staples Two were in the trachea, one in the right bronchus, one in the left bronchus, and two in the esophagus All of these were removed by endoscopic version Five patients made a prompt and uneventful recovery One patient, who had been subjected to ill advised traction previous to admission, was suffering with a mediastinal emphy-

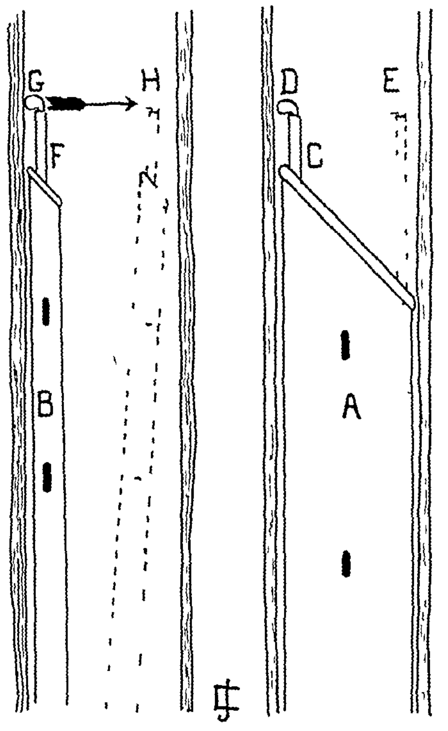

Fig 11—Schema showing advantage obtainable by the use of tubes of relatively small diameter Sidewise movements of forceps can be executed with a small tube, *B* that are impossible with a tube of large relative diameter because the thin flexible forceps, incapable of lateral movement can be forced sidewise by the rigid endoscopic tube if the latter is of relatively small diameter

sema, which rapidly proved fatal In another case a double pointed tack escaped into the pleura, whence it was removed by external operation

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[1] Jackson Chevalier A Fence Staple in the Lung THE JOURNAL A M A, June 5, 1915, p 1907

Hook-Shaped Bodies —Hook-shaped bodies, such as artificial dentures with retaining hooks, bits of metal, wire, etc, present great potential dangers if injudiciously pulled on Usually they require pushing to withdraw the point of the hook A very difficult problem was presented by the very sharp, hook-shaped point of the wire, Figures 7 and 8 The sharp, hook-shaped extremities were liberated by sidewise movement and then were gotten into the mouth of the esophagoscope, where they were prevented from harming the esophagus during withdrawal Traction on the part first presenting would have resulted in perforation into the mediastinum

A few words on prophylaxis may not be amiss here The presence of this sharp-pointed piece of wire in this woman's esophagus points to the carelessness of using an old broken egg beater in making the custard pie, the swallowing of a piece of which led to the accident The frequency with which we have removed small bits of bone from the air and food passages of children and adults points to almost criminal carelessness on the part of the butcher shop and kitchen Pins and needles should not be kept in the kitchen, nor should they ever be held in the mouth while dressing or sewing or at any other time The fifty pins, needles and similar pointed objects we have removed point to avoidable accidents Children should be taught not to put in their mouths anything not fit to swallow The author has collected from the public press in a single year forty-three cases in which children died from the lodgment of a foreign body in the larynx, death occurring before a physician arrived All toys should be regularly inspected for loose small parts that might be put in the mouth Coins, poker chips or other small objects should not be used for teething rings Workmen should have some carrier other than their mouths for tacks, nails, screws, etc No one should go to sleep with an artificial denture or any other loose object in his mouth Even an undissolved tablet has been known to cause death by asphyxia The fact that, thanks to bronchoscopy and esophagoscopy, such objects can be almost invariably removed through the mouth without operation does not excuse the ignorance or carelessness that permitted the accident to occur

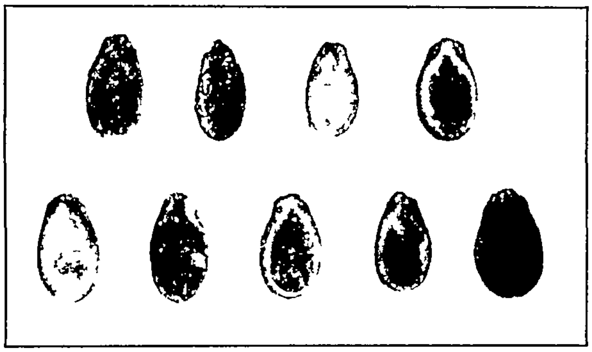

Fig 12 —Watermelon seeds removed from the bronchi of children (nine cases), by peroral bronchoscopy, without anesthesia general or local Some of these required version so as to present an edge for the grasp of the forceps

Tightly Fitting, Corklike Bodies —These are especially apt to be associated with an annular edema of the bronchi which prevents a proper spread of the forceps' jaws Two very successful methods of dealing with the problem have been previously published Briefly described, one is by means of the lip of the bronchoscope making sidewise pressure to permit the insinuation of the hook below one side of the foreign body The hook is then turned and the foreign body pulled on sufficiently to withdraw it above the annular edema, where it can be seized with forceps In the other method, strong springlike forceps' jaws, which push back the annular edema in one plane, are employed These two methods have been successful in dealing with this problem in fifty-two cases, without mortality

Soft, Friable Bodies in the Bronchi —The essential difficulty in most of these cases is to take sufficient hold with the forceps to permit the withdrawal of the body and yet not such a firm pressure as to crush the intruder While the fragments of these bodies may be coughed up if comminuted, a much more likely result is to have fatal multiple abscesses with a septic bronchopneumonia as the result of aspirating the fragments into different portions of the lung We have had sixty-two cases of soft friable bodies, including nut kernels, maize, and various vegetable substances The foreign substance was removed in all of the cases There was no operative mortality, but our "follow up" system discovered that two of the patients had died a number of weeks later of septic pneumonia In both of the cases the foreign body was a peanut kernel No postmortems were obtained, but it seems probable that some fragments of kernel remained behind either from the breaking off of a fragment when grasped by the forceps, or the foreign body might have been multiple in the first place It is also possible that the very violent septic bronchitis which is found in practically all peanut cases may have been more than the child could combat

Bones —The problems of dealing with bones are concerned chiefly with their shape, and these have already been mentioned in connection with pointed objects, transfixed objects, etc Of bones in the larynx, trachea, bronchi and esophagus we have had forty-seven cases The bone or bones were removed in all cases No anesthetic, general or local, was used except in two cases where the bone was of enormous size and very sharp Here the relaxing effect of anesthesia was deemed necessary for safety, to prevent the esophagus being lacerated by spasmodic gripping of the foreign body on removal In all of the cases of bones, the patients, with a single exception, made a perfect recovery The exact cause of the one death, some days later at the patient's home, was undetermined The patient had a nephritis, though this was stated not to have been the immediate cause of death

Disklike Objects —These usually present no difficulty unless they are somewhat saucer-shaped and wedged in swollen mucosa and transversely placed In this case the lip of the bronchoscope is used to make a slight crevice or dent in the swollen mucosa at one part of the disklike object so that an edge can be drawn upward to be seized by the forceps Pins, sharp points or serrated edges, on disks, complicate the problem and require rotation so as to prevent laceration of the tissues during withdrawal of the foreign body

In sixty-four cases, buttons, coins, skirt weights and similar disklike objects, including a poker chip, have been removed in our clinic without anesthesia and without mortality

THE POSSIBILITIES AND LIMITATIONS OF NONSURGICAL BRONCHOSCOPIC TREATMENT *

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GENERAL CONDITIONS OF PATIENTS REQUIRING BRONCHOSCOPIC EXAMINATIONS

The patients and their conditions will vary as does the rainbow. They are usually those who have been treated from one month to a number of years by many different doctors. The majority are more or less emaciated, from the persistent cough and the knowledge of something wrong in their chest for which they have received no relief. Some are sent direct by their physicians; others, having developed the dispensary habit, going from one hospital to another, finally hear of your wonderful bronchoscope and through curiosity as much as the desire for a cure come into your hands. Dependent on the special condition of our patient, we find the general condition. Hence, the asthmatic with his barrel-shaped chest; the tuberculous laryngetic, with hoarse voice and almost continuous expectoration of frothy consistency; the hysterical, who seemingly imitates all or any one of the many symptoms of disease. Generally speaking, however, they are perfectly willing to undergo any examination or instrumentation, to have a correct diagnosis made with the possibility of a cure.

POSSIBILITIES OF DIAGNOSIS GREATER THAN BY OTHER MEANS

That the routine use of the bronchoscope is of invaluable advantage in obscure diagnosis is being demonstrated constantly. Tumors or growths outside of the trachea or bronchial tube pressing and occluding the lumen are of frequent diagnostic occurrence. Calcareous deposits on the tracheal rings are as easily seen as though they were on the finger nails. False membrane of diphtheritic or other origin is found and removed with entire relief from the offending symptoms. Papilloma or other growths causing cough, dyspnea, reflex spasms of unwarranted severity, and either mechanically or clinically producing coughs, rales, expectorations, hemoptysis, malnutrition with greater susceptibility to other or all diseases are diagnosed and removed. Ulcerations from various causes, tuberculous or otherwise, are seen and medical agents applied. Strictures are dilated, asthma and tracheitis treated, all of these and many more are to us an open door through which we see many more possibilities in the future.

TREATMENT OF DISEASES AND CONDITIONS BY LOCAL MEANS

Tracheitis, or tracheal bronchitis, is one of the most frequent conditions we come in contact with. Like bronchial asthma, it appears in two forms: first, as highly inflamed or mucous-covered areas of mucosa, extending around the whole lumen of the bronchi, or as patches along its walls, varying in size from a large pinhead to from one half to an inch in length; second, we may find a dry condition, the secretions, if any, having formed hard crusts or scales of a dark or greenish hue. We are rather inclined to think the second condition is simply a later development of the first. It is within the realm of possibilities to follow the course of the disease from the original infection with the organisms producing the irritation, Nature doing her part by sending leukocytes in abundance to stop the offending invasion; then tracing the outpouring of these through the mucosa with serum, constituting in this way secretion, with the corresponding tuberculous cough and expectoration. If resolution takes place, our patient is well; if not, the mucosa, as a result of the drying of these secretions and the almost continuous cough, breaks down in places and ulcerations form.

The etiology is many sided. It may be due to the occupation, as in the case of a stone or marble worker, or workmen breathing the fumes from iron molding or various vapors of acids; chauffeurs who drive continuously, inhaling quantities of dust. Bad hygienic surroundings may be the cause, or it may be produced by a condition of the upper air passages necessitating mouth breathing, in which we have lack of proper filtration, warmth or moistening of the inspired air; it may be due to sinus involvement, the continuous heavy bacteria laden discharge inflaming the pharynx and continuing by gravity or osmosis, finally reaching the larynx and trachea.

The treatment naturally divides itself into two methods: that appropriate for the first condition and that suitable for the second. We have found applications of glycerite of tannic acid, applied by tampons, the ideal treatment of the first division. These are to be used every other day, the whole lumen of the trachea or bronchi to be carefully gone over and painted. For the later development several therapeutic agents suggest themselves. We must first remove all incrustations, touching the underlying ulceration with silver nitrate, or other silver preparation, or a 10 per cent alcoholic solution of iodin. The dry, reddened membrane responds best to stimulation by the ultraviolet ray. This is applied by means of a vacuum through the bronchoscopic tube, giving not more than one-sixteenth inch spark at any time. As you all are aware, high frequency current is one of our most refractory agents, always wishing to go the long way to a given point instead of the short, and for this reason we have had considerable trouble in perfecting a properly insulated applicator for its use. The ultraviolet ray or spark when applied in this manner stimulates the mucosa to greater activity and acts as a tonic to the underlying arterioles and nerve filaments, dilating the blood vessels to their proper caliber. I have stated the length of spark on account of the great number of electrical machines on the market, with their various ratings of voltage and amperage, thus confusing and complicating the treatment. The current acts in two ways, a one-thirty-second to a one-sixteenth inch spark acting as a stimulant, whereas a larger, stronger spark is destructive in character.

Bronchial asthma can be traced, diagnosed and treated by bronchoscopic means in a surprising number of cases, although all available literature on the subject clouds the causative factor of this condition with many theories. If we expect to find the same clinical picture in all cases, we will *fail utterly*, for just as patients differ in all other characteristics, so their bronchial picture varies. As Jackson[1] has truly said, in order to get an accurate picture, it is necessary that the examination be done without any anesthesia, general or local, in at least one of the sittings with each patient, so that the bronchoscopic picture shall not be altered by the application of the anesthetic The writer reported a case[2] the causative factor of which was a papilloma situated on the carina, and the removal of which gave immediate relief and permanent cure Another case was found to have its exciting cause in quite a large ulceration between the second and third bifurcation on the right side, the treating and healing by bronchoscopic means was followed by entire relief of the patient's asthmatic attacks In the majority of cases, however, we have found the mucosa of the trachea and bronchi red and swollen, here and there covered with stringy, mucilaginous secretion, the removal of which, in quite a number of cases, disclosed ulcerations I have never seen, as Freudenthal[3] records, the appearance of a scarlike mass obstructing the entire lumen of the bronchus, but have frequently seen the lumen partially occluded by such masses I would divide the cases of bronchial asthma into two general classes those in which we have an inflamed, dry mucosa, which may or may not have a local lesion in the tubular air passage, and those in which the mucosa is inflamed and swollen, causing a lessening of the general lumen of the trachea or bronchi, and in which the secretion is copious, the primary factor may or may not be locally situated Dr James Adams has justly pointed out that asthma in most cases is essentially a toxemia and no treatment can be successful without recognition of this fact If we take into consideration the many elements which may enter into the morbid anatomy of asthma, such as the nasal passages, alimentary tract, blood, urine, malformation and toxemia from scores of causes, we can readily see that the bronchoscopic appearance of the mucosa of the respiratory tubes also must vary according to the exciting factor When all other possible causes have been eliminated and no apparent reason assigned, bronchoscopic treatment may be resorted to with numbers of cures reported

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Jackson: Pectoral Endoscopy and Laryngeal Surgery, p. 478.

Ephraim[4] reports six patients cured, eleven improved and twelve not influenced by endobronchial treatment He used a mixture of novocain, epinephrin, and normal salt solution, later reporting 133 patients treated with a spray of epinephrin and novocain with excellent results Greenwald[5] reports good results following repeated applications of 1 10,000 epinephrin

Personally, in the treatment of the conditions described in the first division, I proceed as follows If the trachea is dry or inflamed, the proper treatment is to build up the mucosa as any other mucous membrane in the same condition We first relieve the congested arterioles of the excessive blood by spraying with 1 5,000 or 1 10,000 epinephrin in normal salt solution, after which may be applied by local tampons equal parts of compounded tincture of benzoin and boroglycerid, or a silver solution, or a spray of pure liquid petrolatum with 1 per cent ichthyol applied to all diseased areas This should be repeated in three days and continued at that interval for five or six times to note any effect If the case is one of the second variety, the secretions must be removed by vacuum, all masses of mucus removed, the ulcers treated with silver nitrate, 10 per cent, and a local application of glycerite of tannic acid to the mucosa This should be repeated twice weekly

Papilloma of the larynx in children occurs in two forms In one form the growth disappears spontaneously, in the other, surgical or other means are required That papilloma occurring in children is more frequently cured spontaneously there can be no question Of those patients requiring treatment, I am permitted in this paper to speak only of other than surgical means, of which there are four methods of treatment (1) fulguration, (2) radium, (3) Roentgen radiotherapy, and (4) medicinal agents

Fulguration by means of high frequency current is unquestionably a curative agent to be considered in this condition and if persisted in for several treatments will effect a cure, the only disadvantage exists in the growths which lie under the cord, their position being almost inaccessible for fulguration treatment Harmon Smith[6] reports exceedingly satisfactory results by this means

Radium in every case thus far reported has not only effected a cure, but seemingly prevents recurrence

Roentgen radiotherapy has never been used to any great extent, but should have a curative effect if properly given I am rather inclined to believe that a series of applications of the Roentgen rays will limit the frequency of return in those cases which have had operative treatment

Delevan uses applications of alcohol, starting with a 50 per cent solution and increasing the strength as the treatment progresses We must, however, be exceedingly careful not to have the applicator dripping E L Jones has had excellent results from a saturated solution of salicylic acid in alcohol

I have used fresh pineapple juice in one case with entire destruction of the growth, the action of the juice seeming to shrivel the papilloma, the only disadvantage is in the number of applications necessary, requiring a dozen or more I do not think tracheotomy is necessary before using any of these applications, but all medication must be applied direct to the papilloma and not indiscriminately to any and all of the laryngeal mucosa Papillomas in adults are on the whole more amenable to treatment than similar growths in children and decidedly less liable to return

It is also well to remember that benign growths proliferate on the surface and do not infiltrate

The significance of tuberculosis of the larynx, trachea and bronchi is too well known and appreciated by the profession to need emphasis or repetition With the aid, however, of bronchoscopic methods more light and quicker diagnosis and treatment are made possible In practically all literature obtainable tuberculosis of the larynx and trachea are considered secondary to pulmonary involvement, and yet case after case coming under my care, when examined bronchoscopically have both clinically and microscopically been diagnosed tuberculosis without showing any pulmonary lesions, either clinically or by means of Roentgen-ray examination Granting that the lung tissue is possibly better soil for the growth of the bacillus and the trachea and larynx become involved secondarily, I am unable to see any reason why the interarytenoid tissue, the cartilages or the mucous membrane could not be primarily infected, extension and invasion of the lung tissue taking place secondarily

Dr George Wood in his admirable article has clearly demonstrated the frequent involvement of the tonsils with tubercle bacilli, also that the tonsils act as a portal of entry for the disease into other portions of the body

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[2] Ridpath R F Laryngoscope 1914, **24**, 942
[3] Freudenthal New York Med Jour, June 24, 1911
[4] Ephraim Monatschr f Ohrenh 1913
[5] Greenwald Munchen med Wchnschr, 1913

[6] Smith Harmon Laryngoscope 1913 **23** 1029

As the tonsil is so frequently involved, it does not require such a vivid imagination to reason that the same infection might, and does, occur primarily in the larynx and trachea, the only reason of our inability to properly diagnose the cases has been due to ourselves, and the close simulation of beginning tuberculous laryngeal inflammation to simple acute or chronic laryngitis

With the routine use of the bronchoscope, I believe that another era has dawned for diagnosing and treating tuberculosis in its incipiency According to Casselberry[7] one of the earliest and most destructive of the initial tuberculous changes in the larynx and one which may precede by years any more active development is the mammillated hyperplasia commencing at or near the subglottic portion of the base of the vocal process and gradually marked by a furrow in the vocal angle This later ulcerates into vaguely outlined margins with mouse eaten edges, their base covered with granulation tissue Infiltration and edema may now occur with extension of the disease St Clair Thomson reports 50 per cent of those who die from tuberculosis show laryngeal involvement at postmortem examination, and further states that in ninety-nine out of 178 patients with laryngeal tuberculosis treated in the past three years, the disease was either arrested or improved Brull reports 58 per cent of the patients clinically cured and of these, 31 per cent remained cured While the local treatment for this condition affecting the epiglottis and larynx can be pursued by the direct bronchoscopic method, the suspension laryngoscope of Killian or Lynch is much to be preferred, affording the operator both hands free and close range examination The treatment is to destroy the local lesion either by surgical means, with the curet or by electrically or medicinally cauterizing the area Patients must be cautioned about the resulting edema from these treatments and instructed of its dangers I would suggest to treat only a small portion of the infection at one sitting, thereby reducing the danger from edema If the ulceration occurs in the trachea or bronchial tree, cauterization may be done by beaded chromic acid or trichloracetic acid

Catarrhal hypertrophies of the mucosa appear as swollen, inflamed, spongy areas extending into the lumen of the trachea or bronchi and lessening its diameter The secretion is usually found to be very tenacious and hard to remove The treatment varies with the condition present, from the use of glycerite of tannic acid, or a 2 per cent solution of silver nitrate, to the application to the swollen areas of chromic acid, used as a bead on an applicator

Bleeding from any of the arterioles of the mucosa is easily seen It may originate from a tuberculous lesion, malignancy or aneurysm and the treatment should be instituted according to the condition

Stricture or stenosis of the trachea or bronchi occurs mainly from outside sources Goiters, enlarged thymus, tumors of the esophagus, mediastinal or thoracic tumors and aneurysm may produce it, and with removal or treatment of the original cause we have a decrease or a cure of the stenosis

Syphilis of the tracheobronchial tree may also occur In spite of the frequent involvement of syphilitic lesions in the larynx, the finding of lesions in the lower air passages is a rarity These lesions may be inflammatory, ulcerative or gummatous A therapeutic or Wassermann test is, however, necessary for confirmation and exclusion of tuberculosis

For vocal nodules, Wylie recommends very highly the use of the galvanocautery point Great care, however, must be employed in its use A saturated solution of magnesium sulphate repeated every other day or very small applications with trichloracetic acid will practically always give us the desired cure

Cystomas, according to Jackson, have been known to be cured after galvanopuncture, but he also states that we must be sure to destroy the sac

LIMITATIONS

As all procedures must necessarily have their limitations, so we meet with finitude in bronchoscopy Patients with valvular heart disease, those having any cardiac lesions with failure of compensation, are practically barred from a bronchoscopic examination, first, because of the excitement caused by the examination, and second, by their inability to stand the local anesthesia Patients with long-standing cases of asthma, with the typical barrel-shaped chest and the abdominal breathing, more or less constant cough, dyspnea, thick tenacious mucus and expectoration do not stand the examination well even if the tube can be passed at all They are also very susceptible to cocain and the examination of these patients is almost impossible without its use on account of the chronic inflammation of the membrane People with short, thick necks with their inability to flex the head on the back of the neck are numbered among the class of bronchoscopic impossibilities Arthritis occurring in any vertebral articulation precludes examining the trachea In serious cases of dyspnea the application of cocain with the instrumentation would be extremely dangerous Dyspnea may increase if the larynx is stenotic before operation, necessitating tracheotomy Ankylosed jaws naturally would make an examination impossible Aneurysm might not only produce pressure, with a corresponding convexity to the tracheal circumference, but with the increased blood pressure accompanying it This condition demands great caution, not to speak of the danger of rupturing the aneurysm, an accident which occurred in one of Collier's cases Apoplexy and arteriosclerosis are contraindications Goiter if of sufficient size to press on the tracheal rings or cartilages will be sufficient mechanical obstruction to limit an examination Idiosyncrasy to cocain may induce toxic syncope Serious hemorrhage could occur only in a hemophiliac

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The Medical Mind—Our environment has often caused serious rifts in the brotherhood because, above all things, we are human We are critical, skeptical credulous Let some toiler and earnest worker discover a truth and give it to the world Its *reception makes interesting* reading and causes us to wonder at the strangeness of the human mind Harvey announces the circulation of the blood, Jenner gives vaccination to us Morton gives us anesthesia, Oliver Wendell Holmes shows us the cause and prevention of puerperal fever All these and innumerable others are met by ridicule, angry opposition and abuse It is not that the medical mind does not welcome the truth It is that we are slow to see it—that we have been thinking in grooves for so long that it takes years before a new manner of thinking can be developed—James M Putnam, M D, Address before Buffalo Academy of Medicine

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[7] Casselberry Infective Lymphoid Growths of the Laryngopharynx Secondary to Sinus Suppuration The Journal A M A Feb 13 1915, p 576

THE POSSIBILITIES AND LIMITATIONS OF SUSPENSION LARYNGOSCOPY*

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Suspension laryngoscopy as a procedure is so new that the proverbial pendulum has hardly begun to swing in either direction In the first place, are you entirely satisfied with the instruments as they are shown to you at this time? Is it probable that the last word has been spoken in this regard? I may answer this by saying that I am constantly looking for a more simple instrument than the one I have been using

It would seem that the mechanics involved is on a sound foundation and the principle as proposed by Killian is faultless, yet modern ingenuity may change our method considerably

As we view it today, suspension laryngoscopy is not to be practiced successfully with any instrument designed primarily to sell for $10 The act of suspension is not a simple, safe operation and if we elect to suspend our patient with an instrument that is flimsy, fragile and too dainty to bear the burden, we shall lay the patient open to the possibility of a serious termination and ourselves to criminal negligence

You must bear in mind that in order to convert the curved road from the teeth to the vocal cords, with the mouth wide open, into a straight path, there is required a considerable amount of power and a certain amount of muscle relaxation, the one bearing a direct proportion to the other, and in addition must be considered the possible variations in normal anatomy designed apparently to defeat your purpose

This means that one must use more power than the uninitiated realizes and must apply this in a manner that is perfectly safe in its every detail There are required rigid, strong, well-built instruments which will withstand any strain to which they are subjected

It is an easy matter to view the larynx through a Jackson or Mosher spatula, and the application of either model in trained hands is practical without pain or danger to the patient, and not uncomfortable to the operator In the use of this, however, one hand is busy with the spatula, and whatever further is done must be accomplished through a closed or split tube

With suspension the chief advantage is in seeing the parts in their entirety through a wide-open mouth and in obtaining a view limited only by the boundaries of nature, with no part of the instrument in the field, and with both hands free to work as the indications require One examines more minutely and by direct vision selected areas, using one or both hands to acquire the view One sees plainly before him the entire interior of the oral cavity, the mesopharyngeal and hypopharyngeal spaces, the mouth of the esophagus, and the posterior and interior aspects of the larynx and trachea by such a broad view as is impossible to acquire by any other means For instance, to look into the ventricles of the larynx either by my tilting mirror or directly, or to see the inferior surface of the vocal cords, either by a mirror placed below them or by actually lifting the cord so as to bring the under surface into view is a possibility under suspension only

To study the larynx in health and disease by the tactile sense is an entirely new experience in this field For one who has been trained in the old school of mirror, tongue napkin, applicator or forceps to be permitted to sit before his patient with the larynx entirely exposed in such a manner that no part will be lost sight of, to view each detail carefully, slowly and deliberately and to have the perfect assurance that nothing that the patient can do will in any way alter or disturb the view, then to proceed deliberately to study each detail by the sense of touch and sight combined, to palpate tumor masses, to feel the extent, character and depth of ulcerated and indurated areas, to determine the progress of proliferating, inflammatory and new growth formations, to study the muscular movements of the vocal cords during respiration and phonation and to search the nooks and corners for evidence of disease must awaken in him a sense of delight and satisfaction similar to that experienced by the skilled diagnostician who palpates a stone or abscess in the pelvis of the kidney or an aneurysm of the common iliac artery, or a gynecologist who recognizes an early extra-uterine pregnancy

Now, to proceed further and to remove by dissection a tumor or cyst growing from any locality in the same manner and with the same instruments, slightly modified, as the general surgeon would select to remove a similar mass from the skin surface, to pass a bronchoscope between the vocal cords down into the trachea of an infant or young child, to remove a foreign body from the trachea by means of forceps unaided, to curet and cauterize ulcerated areas accurately without danger of injuring the normal structures surrounding the field of operation, to do a plastic operation on a selected part and to be able accurately to place stitches when and where needed, to introduce the esophagoscope or to remove from any area within the field of view a specimen of tissue for the microscope — these briefly are some of the present possibilities of suspension laryngoscopy

It must be borne in mind that the suspension apparatus is not intended as an instrument for ordinary office examination, nor is it to be used when one wishes merely to see the lingual tonsil or the mouth of the esophagus, nor will it ever replace the use of the bronchoscope or esophagoscope In fact, it is not intended to replace the ordinary throat mirror or the various direct spatulas or the tubes Its field of usefulness is, as I have tried to outline, separate and distinct from all other methods known to us

One acquires skill in its use with a little practice, but like all delicate manipulations, a certain amount of continuous practice is essential to best results For this reason if one has but a limited field or a small clinical service in which facilities are limited, the suspension will not be a valuable addition It is not intended for use in makeshift, impromptu operating rooms, with kitchen tables, ironing boards and the like for equipment

Flimsy mouth gags with sliding tongue plates, having a handle and hook attached, will not replace the carefully constructed instruments presented to you by Killian and myself So long as the principles involved remain as we now consider them, this type of instrument can yield nothing but failure to you and throw discredit on the procedure, so I caution you against them as a class

Fixed cervical vertebrae throwing the chin near the sternum or any other similar deformity which would render it physically impossible to open the mouth or convert the curve into a straight line would contraindicate the use of the apparatus

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* Read before the Section on Laryngology Otology and Rhinology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

A large epithelioma at the base of the tongue with cervical gland involved and one or both pillars of the pharynx indurated would likewise contraindicate its use

In those cases in which thyrotomy and low tracheotomy have been done in persons with long necks, if the larynx seems to drop lower into the chest cavity than the normal and the resulting scar from previous operations limits the free extension of the chin, I have found it impossible to see by suspension any more than the posterior aspects of the arytenoid cartilages

Lastly, one has the privilege of discretion in the selection of his subjects for suspension, and this he is expected to practice at all times and with due regard for patient and apparatus alike

634 Maison Blanche Building

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS JACKSON, RIDPATH AND LYNCH

Dr William Bricker Chamberlin, Cleveland Just as the bronchoscope marked an advance over the older indirect method, so suspension laryngoscopy has marked an advance, but in a fairly limited field, over the bronchoscope Dr Lynch has made some decided contributions in the endolaryngeal instruments which he has devised I have used a few of them, and find them exceedingly valuable The advantages of suspension laryngoscopy must be apparent to all who have used this method The first thing that must occur to one is the advantage of this method in having the patient suspended by a mechanical device, thus leaving both hands free for any manipulation The very striking advantage of having two hands free came to me sometime ago, when in a rather short space of time I had three cases of open safety-pin in the esophagus I was able in each case to dilate the opening of the esophagus with a pair of nasal forceps, and by grasping the head of the pin and giving the forceps a turn bring the eye of the pin into view Then I grasped the eye of the pin with a second forceps, thus doing a version in the esophagus the same as we do a version in the uterus Suspension laryngoscopy is especially valuable in children It certainly has rendered the handling of the larynx in children a very successful operation Much of this work could probably be done equally well by bronchoscopy but it certainly is much easier to accomplish by means of suspension In children with suspension, a general anesthetic is necessary In the adult one may use either a general or a local anesthetic, depending on the disposition of the patient Both suspension laryngoscopy and bronchoscopy have their special fields One who has examined the hypopharynx or larynx with the bronchoscope can fully appreciate the added advantages which suspension affords You have the whole field immediately in view, and you can demonstrate this field to those who have never seen it before—men who are not experienced in the use of the laryngeal mirror I want to enter a plea that we continue to perfect ourselves in the old method of indirect examination and indirect operation Dr Lynch has well said that suspension laryngoscopy is not a procedure for the country home on the kitchen table or ironing board, nor is it a procedure for the office, it is a hospital operation Many growths in the larynx can be removed just as successfully by the indirect method as by the direct, and if any one of you had the choice between having a small papilloma of the vocal cord removed by the indirect method in a few moments in a physician's office, or going to a hospital and submitting to the discomfort of suspension, you would not be long in making up your minds There has been such enthusiasm over bronchoscopy and suspension laryngoscopy that many of the younger men have failed to perfect themselves in the old technic of indirect examination and indirect operation This is a great mistake

Dr Thomas Hubbard, Toledo, Ohio In the invention of instruments for bronchoscopy or esophagoscopy it is exceedingly important that they be considered from all points of view Any instrument for grasping a foreign body that will not permit easy release is a dangerous instrument A curved hook should not be used in the tracheal tract, because it is possible to so engage the curved hook in a ring of the trachea or bronchus that it is very difficult to let go A right angle hook is much safer

I want to endorse Dr Jackson's statement that, as a rule, we should use as small a tube as possible There are exceptions Peanut cases are liable to develop pneumonia, and the reason is probably the multiple fragments It is important to remove large and small fragments without a reinsertion of the tube, because of danger of subsequent laryngeal edema With the exception of cases of that character I think the small tube is preferable We should also bear in mind the liability of overlooking a foreign body which may be impacted in the ventricles of the larynx The same applies to foreign bodies in the esophagus and here the large caliber tube is particularly indicated

Dr Samuel Iglauer, Cincinnati If I understood Dr Ridpath's statement correctly, he implied that primary tuberculosis of the larynx might not be an uncommon thing That statement would have to be questioned somewhat We might not be able to demonstrate tuberculosis elsewhere than in the larynx, but the real test is the postmortem test, and I believe postmortems show that primary tuberculosis of the larynx is exceedingly rare If it were primary the prognosis would be much more hopeful As to the use of the cautery in tuberculosis of the larynx I have had occasion recently to look up the literature on this subject, and it seems to me that our prognosis should be much brighter now than ever before especially if one reads the article by Ruedi of Davos He treated over 500 patients, using chiefly the cautery according to the method of Siebenmann, which consists in destroying the entire tuberculous lesion He claims 33 per cent of cures in all his cases Some of his cases, however, have been under observation too short a time to allow for such a high percentage, but nevertheless there is no doubt that we should take a more favorable view of tuberculosis of the larynx, especially if the patient has not much pulmonary involvement The statistics of Siebenmann are better, they have covered a larger period of time, and his percentage is 16

I understood Dr Ridpath to say that he could cure papilloma of the larynx in children by fulguration I would like him to go into details as to how he carries out the treatment and how many cases he has had I have used it but once, without any apparent results He also spoke of radium You may do damage with radium I have one patient now in whom I am firmly convinced that I destroyed the papilloma, but burned the larynx to such an extent that he has a condition which is very difficult to relieve Radium was applied three times The third application produced the burn, so that great precaution should be taken in the use of radium inside the larynx I used 50 milligrams for about seven or eight hours

Dr Jackson believes in preparedness in bronchoscopy I attempted to remove a screw from an abscess in the lung It had been in situ for three years I was unable to see anything by bronchoscopy owing to the excessive amount of pus I therefore procured a giant magnet A steel rod previously shaped was introduced through the tracheotomy and the magnet applied to the rod The screw came out dangling on the end of the rod Dr Jackson also spoke of the method of seizing the point of an open safety-pin and drawing it into the tube I have done this four times Twice it was very easy because the pin was in the hypopharynx and I could remove it through the Jackson speculum But in the two other cases the pin was in the esophagus and while I seized the point of the pin and was able to withdraw it successfully, yet when it came out it opened wider and dropped back into the mouth As the pin was withdrawn the clasp of the pin caught on the cricoid cartilage As an aid to bronchoscopy in very small bronchi I have devised a little instrument, a "bronchioloscope" The object of the instrument is to give an unobstructed view by sliding a flexible forceps along the outside of the bronchioloscope

Dr H P Mosher, Boston Dr Jackson has given us the last word on the mechanical extraction of foreign bodies

Dr Ridpath works along the line I have suggested and has given us his results Primary tuberculosis of the larynx, if it is ever to be discovered by any one aside from the pathologists, is to be discovered by the man working with the lighted tube

Dr Jackson has forced a revolution in the method of anesthesia in the examination of the trachea or esophagus Dr Ridpath was not specific on this point I would like to know whether he succeeds in making his diagnosis and carrying out his repeated treatments without any anesthetic

Speaking of the movement of foreign bodies in the trachea, I was reminded of a case which puzzled me quite a bit. This was a foreign body in the esophagus This child was brought in with a history of having swallowed and retained in the esophagus a nickel when the fluoroscope showed that the nickel had not passed down, but was in the usual place at the opening of the esophagus, and had an upward and downward movement of 1 to 1 5 cm That immediately brought up the question whether I had not made a mistake and that it was in the trachea It proved, however, at operation to be in the upper part of the esophagus The explanation of the movement was that the nickel was large enough to distend the esophagus quite a bit, and, of course, as it extended it distended the anterior wall of the esophagus which is a common wall with the trachea, the movement of the trachea transmitting the foreign body to the esophagus

Dr Ross H Skillern, Philadelphia We can all do that work and we should do it When we do this bronchoscopic work we have to forget time entirely, because the sine qua non of the whole thing is thorough anesthetization of the parts That takes perhaps ten to fifteen minutes with each patient. We use a very strong solution of cocain with epinephrin, and keep on using that until the larynx and glottis are absolutely anesthetized Then introduce the laryngeal speculum and the other instruments Dr Lynch in his suspension laryngoscopy has given us one of the greatest advances that we could possibly have I think I have used nearly every model that Killian devised They were all good more or less, some of them much more satisfactory than others—they seem to improve progressively—the last model however, was not as good in my hands as were others We had trouble with our long epiglottis retractor The instrument would bend, it seemed too flimsy I got a couple of teeth one time, pulled them out of the upper jaw But on the whole, I was always more or less in a strain while the baby was being swung up Now, since Dr Lynch has perfected his instrument I go about it without any fear or trembling whatever The great advantage of his instrument is its solidness You can put it in there and you can absolutely hold up the epiglottis One must admit his instrument is more difficult to introduce than the Killian, because with the Killian we do the suspension first, whereas with his instrument you have to be able to perform a direct laryngoscopy before you can introduce this instrument properly Killian made a great stride in his discovery but it was an American who brought the instrument to its present state of perfection

Dr George F Cott, Buffalo These patients return after having the bronchoscope introduced several times, not to have the procedure repeated but because they want the effect of the cocain I know we had a few in the Killian clinic, and they came back for the cocain

Dr W E Dixon, Oklahoma City Most of these patients can be treated without any cocain at all I find it very satisfactory to pass the bronchoscope with the Jackson instrument and treat the larynx medicinally without any cocain—much easier with the Jackson speculum than with the Bruening or the Kohler

Dr George F Keiper, Lafayette, Ind We need not be in a hurry to pass the bronchoscope I remember a case in which I missed a foreign body and it was because the physician insisted that I pass the bronchoscope *without first* obtaining a roentgenogram As a rule, the patient declares he can locate the foreign body in the trachea or gullet, absolutely locate it, and yet when you have a roentgenogram made there is *sometimes no foreign* body or any evidence that there ever was a foreign body there In locating a foreign body in the eye the patient can always tell you where it is, but do you find it in this place? Not at all With reference to the treatment of asthma by the use of the bronchoscope, I have had some experience along that line and I have never failed to relieve obstinate cases which were not relieved by any other means by the use of the bronchoscope, following out the plan of Nowotny of Krakau and also as reported by Freudenthal, as well as by Secord Large of Cleveland and Henry Horn of San Francisco

Dr Robert H Good, Chicago I would like to ask if any one has tried blocking the superior laryngeal nerve with novocain for this purpose I did this the other day and it certainly worked nicely This patient made no complaint on passing the bronchoscope

Dr Lee Cohen, Baltimore I would like to place on record a case of laryngeal papilloma in a child of 5 years, who was operated on five times in fifteen months, suspension laryngoscopy being employed In spite of the most thorough removal, the use of alcohol etc, the growth recurred with monotonous regularity until after the last operation, about nine months ago Dr Burnam, an associate of Dr Howard A Kelly, was requested to use radium While the details as to dosage or the duration of each application can not be given it can be stated that the number of applications were four, and all of these were made from the outside over the larynx There has been no further sign of recurrence, nor have any contractions within the larynx occurred as has been observed repeatedly when radium applications were put inside of the larynx Furthermore, in spite of the most extensive cutting operations, involving almost every portion of the larynx, the child's voice is perfectly normal

Dr J W Murphy Cincinnati I had a case in which the stem of the tracheotomy tube which the patient had been wearing became loosened and was inspired into the left lung There were no physical signs A few hours after the accident the only pain complained of by the patient was between the shoulder blades I have also had several cases of bone foreign bodies in the esophagus and all the patient could say was that the pain was in the region of the scapula I think the internists have solved some of these problems in reference to pain in and around the stomach in which the pain is located high up near the shoulder

Dr William Redfield Butt, Canton, Ohio The point made by Dr Good in reference to anesthetization of the larynx should not be lost It is valuable Dr George Fetterolf of Philadelphia a couple of years ago, read a paper on alcohol injection of the superior laryngeal nerve for relief of pain in laryngeal tuberculosis, and it works very well in those cases The superior laryngeal nerve supplies sensation to the entire mucosa of the larynx with the exception of the tip of the epiglottis It can be injected with an ordinary hypodermic needle in the space between the hyoid and thyroid externally Combining this with a little cocain applied locally within the larynx to the tip of the epiglottis gives full anesthesia of the whole larynx

Dr Robert F Ridpath, Philadelphia I made the statement in my paper that tuberculosis of the larynx is decidedly more common than the literature indicates I also gave my reasons why we have not diagnosed it more frequently—partly due to our own inability, and partly due to it being masked or simulating other forms of infection of the larynx As my paper limited my subject to the nonoperative procedures it was necessary to have as complete a paper on that subject as possible I mentioned fulguration in papilla of the larynx In the paper I did not state that I had used it personally My statement is entirely a *quotation* Dr Harmon Smith of New York has used it quite successfully Dr Yankauer of New York also uses it Personally, I have never used it The treatment which I have instituted, *which is entirely of a medical nature*, you will find incorporated in the paper I, of course, could not speak of the surgical end in this paper

In the examination of asthmatic patients you will find it is practically an impossibility to examine these especially at the first examination, without the use of cocain You have a person who has a cough which is irritating and frequent, you have an upheaval of the whole chest, you have also the natural nervousness of the patient due to the disease All of these must be overcome Personality overcomes some obstacles, but cocain overcomes decidedly more, so we use cocain We do not use, as has been mentioned by Dr Dixon, a saturated solution of cocain and epinephrin in these cases, but we anesthetize the pharynx and the epiglottis with a 20 per cent cocain solution The trachea and bronchi can be anesthetized, if necessary This is applied with a tampon and a long applicator In my former paper I gave my methods of applying this to the trachea Patients do not come back for the effect of the cocain Any one who has had cocain applied to his throat will not come back for the second dose if he did not receive some benefit from the other medicinal agents which have been applied In fact the cocain absorbed from mucous membrane is anything but pleasing They come back because we have helped them I have shown you a tube or applicator which I devised for the application of high frequency ultra violet rays We are not at this time able to give any definite data on the subject, but we think it is an agent which all investigators should look into

Dr Chevalier Jackson, Pittsburgh One by one the various parts of the human body are being subjected, so far as possible, to examination by the eye If the bronchoscope is ever to attain the full measure of usefulness which it deserves, it will be necessary to do the bronchoscopy either under local anesthesia or without any anesthesia, general or local The internist, rightfully, will object to subjecting his patient to a general anesthetic, when the symptoms are slight, in other words, in that early stage in which a diagnostic bronchoscopy is particularly indicated This is very different from the foreign body bronchoscopy, in which the operator is perfectly justified in using any anesthetic that appeals to him as best in the particular case according to his personal equation In our clinic, Dr Patterson and I use no anesthetic at all in children under about 10 years of age, in those above this age local anesthesia is used in bronchoscopy and direct laryngoscopy We do not use general anesthesia for either bronchoscopy, esophagoscopy or laryngoscopy Dr R H Johnston tells me he gets good results from alypin anesthesia In any case requiring repetition of the procedure the danger of drug habit, as mentioned by Dr Cott, is very great, and I think all such work should be done without any anesthetic There is one point in which our experience does not coincide with that of Dr Ridpath We have never yet found it impossible to do a direct laryngoscopy or a bronchoscopy on any patient who could open his mouth Possibly our turn is yet to come Dr Hubbard's point in regard to the danger of seizing a foreign body with a snare or any other instrument which cannot be made to let go if it is necessary appeals to me as being exceedingly valuable I never had that experience but once in the early days of bronchoscopy I had a bronchoscope fastened in a bronchus by a pin being projected by cough through the holes of the bronchoscope, the point entering the opposite wall The transfixed bronchoscope could not be withdrawn until I broke the pin with forceps, taking two fragments out separately I have since modified the holes in the bronchoscope so that this accident cannot happen again Dr Hubbard's point about the peanut kernel is also excellent, but it seems to me it would apply only to peanut kernels not too large to be drawn into the distal end of the bronchoscope Larger fragments would be crushed by the forcing shut of the forcep's jaws entering the tube mouth I wish to emphasize Dr Iglauer's caution in regard to the use of radium We have not used it for anything except cancer Overdosage, especially in case of a benign growth might end in disaster I think the point made by Dr Mosher in regard to the movement of a foreign body in the esophagus is most important Dr Skillern's remarks about the time required for bronchoscopy deserve emphasis Bronchoscopy hastily done in between a hard day's work on tonsils, adenoids and other routine surgery is not conducive to the best results The experience of Dr Dixon corresponds with that of Dr Patterson and many others

Dr W R Buck, Canton, Ohio I should like to ask Dr Jackson if he has had any experience with direct laryngoscopy after thyrotomy, and other laryngeal operations

Dr Jackson Any operation on the neck is apt to create adhesions that will make direct laryngoscopy more difficult, but we have not yet encountered a case in which it could not be done We have many patients, especially children, who have had papillomas or diphtheria in whom thyrotomy or laryngostomy has previously been done In any of these cases exposure of the larynx is made easy by inserting the laryngoscope at the side of the tongue instead of over the dorsum This does away with the necessity of so much displacement External esophagotomy may render esophagoscopy exceedingly difficult, but with care and patience the esophagoscope, as well as the bronchoscope, can be introduced in any patient who can open his mouth

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HEALTH INSURANCE AND THE MEDICAL PROFESSION

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NEW YORK

At the recent Conference on Social Insurance, at Washington, several medical men voiced the opinion that it would be possible to give better medical service to sick persons of moderate means and to the sick poor than is given today True, in many of the hospitals, the sick poor now receive the best that medicine can give The rich and the well-to-do can buy an equally good service But it is impossible for self-respecting people of small means who pay their bills to obtain from the profession the medical services they should have or for the profession to give them this desired grade of service under present conditions The science of medicine has grown so extensively that no one man can give everything to his patients There must be the cooperation of several men to obtain really adequate medical service today This is best perfected in the group method as seen in the team work in well organized hospitals

To obtain more effective measures of caring for the sick poor or for those of small means in a community has been the aim of the framers of the health insurance bill of the American Association for Labor Legislation Whenever compulsory health insurance has gone into operation, an amount of sickness has been disclosed that has surprised even physicians working among the poor This was especially true in England, and particularly so among the women workers In certain investigations made in this country, for example, in that in Rochester, N Y, made by the Metropolitan Life Insurance Company of New York City, it was found that only 63 8 per cent of those incapacitated for work employed physicians or were being treated in institutions, only 50 per cent of the total sick outside of institutions were in the care of physicians, and only 45 3 per cent of those sick but able to work were being cared for The State Charities Aid Association made a study in Duchess County to ascertain what percentage of those sick, in all classes of society, obtained adequate care By "adequate care" is meant that service which results in the patient's recovery when that can be expected, and which is of such a character that neither the patient nor the community incurs avoidable risks[1] It was found that, even among the well-to-do, 19 per cent did not receive adequate care. Among the middle classes — those who could pay for certain services for a certain length of time — 50 per cent. were not adequately cared for, and among the poor 68 per cent. received inadequate care. In other words, to obtain the best economic human value from employees or to give the best economic value to an employer, there must be a change in the method by which medical service can be obtained, an improvement in the service rendered, and a broadening of opportunities to render this service.

Sickness in this country is still looked on as a personal misfortune. The social conscience has not yet realized that sickness is an economic calamity for which all members of the community are responsible in varying degrees, and for which the whole community pays. It bears, of course, most hardly on the individual who suffers the calamity, but the sickness of a community reduces its economic income, since it diminishes the earning power of each individual who suffers. The greatest economic asset that a workman possesses is the health that enables him to go to work each day. If he loses that, he loses his power of earning his living. Most wage earners live on a wage from which they can store up but little to protect them against individual misfortune. The great misfortune of their poverty is not that they are poor, but that when calamity or misfortune befalls them, their poverty changes to destitution and they must suffer the destitution or turn to public charity for aid. If, then, it is possible to develop a health insurance scheme in which sickness is regarded as a calamity that may befall any one, and in which every one has joined together to sustain and aid those who are temporarily stricken, the dire effects of sickness to the family or to the individual are warded off, poverty ceases to turn into destitution, and proper convalescence is possible to the sick individual that he may regain his damaged health and be again of a value equal to his former value as an economic asset in the community. This is the justification from a social point of view for the change from the economic conditions under which we live to those which a compulsory health insurance scheme would bring about in a community.

In any health insurance scheme, intricate machinery is necessary, and physicians are an essential part of this machinery. The service rendered by the medical profession must be on a business and not on a charity basis. The public has long considered it a part of the physician's duty to give his time and knowledge to charity whenever the very poor were concerned. This has been willingly and gladly given, but because it has been so willingly given is no justification for asking that physicians under the health insurance law shall not be justly and adequately remunerated for an adequate service. Physicians must earn their livelihood in carrying out the provisions of the law, and they are justified in demanding that the standards of this livelihood shall not be lowered from the standards they already possess. These are the standards of the professional classes of the community, and not always those of the daily wage earner.

All successful measures dealing with sickness insurance require concentration of authority in local control. Hence, under the contemplated law, the fund which distributes the cash benefits and medical benefits is not a state fund or any generalized corporate carrier, but a local mutual benefit fund, the directorate of which is composed equally of employers and workmen, with a state representative. The state health insurance commission divides the state into districts, none of which shall contain less than 5,000 persons who are subject to compulsory health insurance. There shall be as many local funds in each district as shall be deemed necessary. Each fund will have special whole time referee medical officers paid by the funds, whose duty it shall be to decide when the insured shall receive the sick benefits and when the sick are well enough to go back to work. These medical officers must be paid a salary, as they are not permitted at any time to engage in private practice. They report to the health officer on the local medical committee any unhealthy conditions found or any infractions of the sanitary code or sanitary ordinances. They have the duties of a health inspector to investigate and report, and they can be removed on charges for failure to perform such duties. They are, however, paid by the funds and responsible to them, and are thus hired, by both the employers and employees to judge of the occurrence of sickness and of its limitations, and to give a general supervision during its duration.

The standards under which these medical referees are appointed are decided by the advisory medical board to the commission, one member of which is the state commissioner of health. Examinations for appointment are held either by the state civil service board or by some other adequate board. The medical referees work under regulations agreed on by the directorate of the funds and the local medical board. It is thus possible to obtain high grade men who have a grasp of preventive medicine and sanitation and also of internal medicine and surgery. This is a broader specialism than is possessed by the average physician and surgeon today.

It has been strongly urged that all men doing executive referee work should be executive officers of the state commission and not of the funds, on the ground that they would be more impartial, that they would be less apt to lean too much to the side of the funds or to the side of the patient, and that both employers and employees would be satisfied with any decision so long as it was given by an impartial person representing the central power of the state. Theoretically this might be so. Practically, officers appointed by the commission would not be responsible to the funds, and could not be held to strict accountability by the funds. It would be a loss of local control and local authority. The local funds represent both employer and workman, and it is necessary that they should control the men on whose decision depends the expenditure of their money. A state referee would not be removable by the funds either for unsatisfactory or for incompetent work, and if he were incompetent, it would not be any advantage simply to transfer him from one fund to another. In our system of government, appointments by governmental commission are more liable to be purely political than appointments by local funds, because the self-interest of the funds would force them to protect themselves against poor appointments. This self-interest in money matters, this self-interest in the expenses of these mutual funds, is the active driving power to keep up the standards of service in sickness insurance. Employers and workmen will be unwilling to see their earnings wasted, and this factor will inevitably prove the force necessary to keep up essential standards.

The personal care of the insured is carried on by panels of physicians. Every legally qualified physician in the state may, on application, be put on the panel or list of physicians willing to do health insurance work in his district Any physician living on the edge of a district or any other physician so desiring may enter his name on one or more panels The proposed law provides that if the medical work in a district is done by salaried physicians or by physicians in establishment funds, the requisite panels shall be formed of these same physicians The insurance provided is not only for the workmen but also for his dependents, and there is contemplated free choice of physicians by the insured, within reasonable geographic distance All persons provided for in the law must be on the list of some physician Free choice of physicians by any patient must be subject to the willingness of the physician to take the patient The local medical committee must have the power to assign to some physician all patients who have not become definitely settled on some physician's list Probably there must be a limit of the number of patients that a panel physician may treat If this is not done the English error of having a small fraction of physicians care for a majority of the patients, producing hurried medical service and inadequate care to the sick, will be repeated Five hundred families, or 1,000 insured, or some such ratio as this, which would give to each physician an average of twenty or thirty patients a day to see, would be a useful maximum This is a matter, however, that could well be left for executive regulation The panel physicians must group themselves together, as such, in order that they may appoint their representatives on the local medical committee and also that the interests of the physicians who are on the panels may be protected by organization Under such organiaztion or through existing medical societies these physicians, should they so desire, may contemplate collective bargaining This collective bargaining should be permitted, but it should not be the only method by which medical service could be arranged Panel physicians must give the sick adequate care for ordinary needs The medical referee as an officer of the funds takes from the panel physicians all responsibility of deciding when a patient is sick enough to receive cash and medical benefits, and when he is well enough to cease to receive these Experience abroad has shown definitely that it is impossible to combine this responsibility with the daily care of the sick in one physician If the physician who has the daily care of the patient must also decide when the patient is to go on the funds or off the funds, as it is called, there is incessant friction There is always the accusation of collusion with the funds to drive sick people to work or of collusion with the patient to put healthy men on the funds or to keep them there Hence the necessity of the medical referee officer of the funds deciding all questions involving beginning, duration and cessation of benefits

The usual body with which the directorate of the fund will deal in medical matters is a definitely organized local medical committee The various regulations necessary for the control of all medical matters in any district, that is, regulations referring to panel physicians, to dispensaries and hospitals, to specialists, and dentists, to the relationship between the panel physicians and the medical referee officers and between doctors, druggists and nurses, and all such relations as are necessary for the intricate running of a health insurance law must be supervised by the local medical committe, composed of representatives of the panel physicians and of representatives of the dispensary and hospital attending staffs, and also — and here is a very important point — a member of the local health department or the local health officer This committee has the power to pass on and report to the directorate of the local fund on all regulations affecting medical matters promulgated by that directorate In the majority of cases these two boards will agree But if they fail to agree, an arbitration committee is to be formed consisting of a representative of the local sick fund, a representative of the local medical committee, and a third person who shall be appointed by a county judge or by a justice of the supreme court This arbitration committee has the final decision in these matters, unless there be an appeal on either side to the advisory medical board and through that to the commission It seems necessary that this local medical committee should have the veto power to be exerted only against the appointment of an unfit medical referee officer by the local sick fund It should not have the power, nor should it be permitted to recommend medical referees to the fund, but it should be able to prevent unfit referees from being appointed This doubtless would be rarely used, but it should be in existence

There should be in many localities, if not in all, a corps of consultants to furnish second opinions This is especially true of small towns which lack dispensary service and may lack sufficient hospital accommodations The consultants may be connected with dispensaries or hospitals, or may not be They should act as referees in purely medical and surgical questions whenever there is an insistent demand or an insistent appeal from the decision of the medical referee officer of the fund

Under the health insurance law the dispensaries would be places for group medicine, that is, for the gathering together of all specialists, and consulting opinions in general medicine and surgery may be secured Any patient can be sent by any physician to the dispensary to obtain special treatment or an opinion on some special condition, or he may be sent to a general practitioner at the dispensary for an opinion on diagnosis or therapeutics This second opinion — that is, this consultation — should be granted to the patient whenever it is demanded by the patient, by the panel physician, by the medical officer of the funds, or by the directorate of the funds Under the panel system every patient is under the care of some panel physician, and therefore panel physicians cannot treat in dispensaries in every day medical and surgical care the patients of other panel physicians Panel physicians can act as consultants in the dispensary, but it would not seem possible to have the ordinary advice in internal medicine in the dispensary as is done today If the panel physician is restricted in the number of patients he can treat, and if patients are not permitted to change their panel physicians except at stated intervals, patients certainly cannot go from physician to physician or from dispensary to dispensary to be treated for ordinary ailments If they are going there with the knowledge of their physician for a second opinion on diagnosis or therapeutics, the dispensary will prove a boon to them and to the community, but if any other condition is allowed, the dispensaries will prove a never ceasing source of trouble, friction and confusion The different specialties can be followed in the dispensary, or the specialists outside the dispensaries can send their patients to men in the dispensaries for the consultant's opinion, if they so desire But here again the division must be made to prevent incessant confusion The dispensaries will be a boon because they will develop into the best examples of group medicine Free dispensaries will cease to exist The medical and surgical care furnished in dispensaries will be paid for the same as to other physicians under the insurance act If, in the community, there remain patients who are not under the insurance law, who desire to go to the dispensary, that is a question outside of the insurance law, and regulations must be promulgated and enforced to regulate such special groups of patients

There must also be ample hospital accommodations for patients who need hospital care Patients sent to hospitals must be attended by members of the staff who are regularly enrolled on the panels A reorganization of the basis on which physicians do their work in municipal hospitals, and even in private hospitals, would have to take place At present, both public and private hospitals accept fees for the treatment of patients under the workmen's compensation laws, but it is forbidden the attending staff to accept any of these fees, and these are kept from them and go to the hospital The exploitation of physicians should cease The men working under the act should receive their just dues for the care of these patients, the hospital charging its just due for their nursing, food and lodging But hospital care and medical care should be distinctly separated, and the whole of hospital nursing expenses should not be charged as is now done to medical fees

We come now to the consideration of the state medical advisory board This forms part of the general state supervision, and should be taken into consideration with the state health insurance commission This advisory board is composed of representatives of the various state medical societies and the state commissioner of health It passes on all regulations relating to medical benefits and on the relation of physicians and surgeons to the insured, and the commission waits for the approval of this board before putting these regulations into effect The commission may put temporary regulations into effect for not more than six months To this medical advisory board are referred all disputes regarding medical benefit that have come from the local committees on appeal through the arbitration committee to the commission This medical advisory board also decides on the standards on which the local medical referee officers shall be appointed, and gives these standards either to the civil service commission to hold the necessary examinations or to some other authorized body whose duty it is to examine these medical referee officers for the local funds In the law as now contemplated the state commissioner of health is a member of this advisory board, but if thought advisable the secretary of the state board of health could be designated The state board of health has the power through him to see that in the standards promulgated by the medical advisory board for the local medical referee officers there shall be included standards of sanitation and preventive medicine which will enable these referee officers to act in an intelligent manner in regard to the questions of preventive medicine and sanitation in their daily duties in supervising the care of the sick under the local funds Moreover, the local medical officer or the representative of the local board of health is on each local medical committee, and the regulations under which the work is done in each district has been passed on by the central health authorities This health insurance law does not detract or take away in any manner from the powers already possessed by the state health department or by any local health department in the state The powers of both the state and the local health departments are widely autocratic and should be so, and they are not hampered or diminished in any way by this act as contemplated This act, as a matter of fact, broadens the field of preventive medicine and sanitation and gives wider and better opportunities than is now possible for the health departments to put into effect their regulations, because the opportunity is here offered to promulgate standards by which men may be appointed and regulations under which officers shall work which shall contain all the necessary provisions for the problems of preventive medicine and for the control of sanitation The idea has been widely disseminated that this health insurance law does not provide for the great problems of preventive medicine and for the sanitation of the community If it does not, it will be due to the failure of the members of the health department of the state and of the local departments to grasp the broad opportunities here offered through the control of their representatives by means of the standards under which they are appointed and the regulations under which they work There is here both local and central control If there arises any dispute between two local committees about sanitary matters, the local power over them possessed by the local health department can quickly force a decision Such power exists today, and there is nothing in the health insurance act to diminish that power If disputes arise between two committees of separate districts, the state health department has control and can exert it The same power is possessed by state and local health departments under this law as is now possessed, and can be exerted, and the same responsibility rests with them to exert it

Under the health insurance law there are also advisory boards to the central state health insurance commission from the local sick funds and also from the trained nurses, appointed by the state society of trained nurses, where one exists The organization of an efficient form of nursing under this law is a necessary feature and one which will be formulated The regulations would probably run parallel to the medical regulations, because harmony between these two sets of regulations will be necessary There will also have to be regulations regarding the prescribing of drugs, both for the economical prescribing of the necessary medicine and the economical provision of surgical supplies and the various appliances, such as eye glasses and trusses These are part of the medical benefits, and are paid for by the local funds They, therefore, come in under the regulation of the board of directors of the local sick fund All regulations regarding them will have to be promulgated in general by the commission, and, if necessary, modified under the advice and guidance of the directorate of the local sick fund These details, however, should be regulated by executive order of the commissioners and not be put into the fundamental organic law of the state There are matters that need quick action, and therefore should not be in that part of the law which requires legislative action to change, but should be left to the discretion of the commission in order that they may be changed at any time

The state health insurance commission appointed by the governor is composed of a chairman, a physician and a third member The medical profession has wisely insisted that it shall be adequately represented on all committees before which their interests would come for decision, and in the scheme here outlined this adequate representation of the profession has been provided and safeguarded in a manner that is just and fair to the profession

The question of remuneration to physicians is one that is not yet decided Some members of the profession insist that it shall be definitely stated in the law They are unwilling to leave it to executive regulation after the law is passed The experience of physicians in some states, especially in Massachusetts and in New York, under workmen's compensation laws, has made them realize that their interests were not safeguarded These laws were passed before physicians realized the responsibilities that would come to them or what their duties would be under the law One of the most noticeable features of the workmen's compensation laws today is the totally inadequate surgical care provided by the law for the really seriously injured person, and the inadequate remuneration which any honorable physician may obtain when caring for any person who is seriously injured

The methods of remuneration should be discussed, There are four possible ways of payment by straight capitation, by visitation, by some variation or combination of these two, or by salaried district physicians By straight capitation is meant that the doctor is paid so much per patient per year This is the scheme which is employed in England, and is the scheme of the ordinary lodge practice and club practice, as seen in this country It is a method of payment which has always produced inadequate service, unsatisfactory to both physician and patient Those who require the greatest amount of care and those who are really sick are the ones who are liable to receive disproportionately less care than they should have These evils are inherent in the method, and it is the condemnation of these evils which has caused such vigorous condemnation and resentment in the profession against the lodge practice and contract practice of today Everywhere an underpaid physician giving inadequate and hurried service is held in contempt by his patients and by his profession The only recommendation for this method is that it is the cheapest and also the easiest method for the funds to calculate how much medical care will cost

The payment by visitation is acknowledged to be the most expensive method, since the physician treats his patient, as in ordinary private practice, and charges each visit pro rata against the funds Expensive though it may be, unless it is proved to be prohibitive, the expense per se is not a valid objection against this method Under this method there is no question that the patients receive the best care It has always proved to be more satisfactory than any other method to both patients and doctors The time honored relationship of confidence and privacy between physician and patient, which from time immemorial has been considered desirable, is best conserved under this method of remuneration In certain towns in Germany, such as Bremen, this is the method employed, and its operation has there proved satisfactory In certain rural districts of Germany it is also the only method under which medical care is given It is urged against it that with an unknown morbidity of disease there is always an unknown expense facing the funds This objection sounds stronger than it really is in fact, because after a few months' trial the varying morbidity of a district can be fairly well gaged, and unless there is some unforseen outbreak of an epidemic, the morbidity as calculated runs along with very little variation of error It is further urged against this method that unnecessary visits may be made If this proves to be true there must be a procedure by which a dishonest physician may be dropped from the panels and, unless reinstated, prevented by law from receiving further remuneration from the insured under the health insurance law The local committees and the physicians on the panels must protect themselves against the action of dishonest physicians This has been done in England and Germany, and can be successfully done here

It is possible that a compromise between the methods of capitation and visitation may be put in force It is a more complicated method than either one of the other two, but, like all compromises, it may appeal to many people The method referred to is that by which the local sick funds give a lump sum to some responsible medical society Physicians give their services by visits and by work done, and calculate each visit and each kind of service as so many points and charge the total number of points against the medical society At the end of each quarter each physician hands in his record of points made, and the total number of points of services given are divided into the total lump sum of money, and each point has a certain value for that quarter, the value of each point varying from quarter to quarter according to the amount of work done The disadvantage of this method is that the more work that is done the more the value of each point diminishes, and there comes a time when, with the amount of money remaining stationary, a period of great morbidity, such as an epidemic, would cause double the amount of work to be performed, and the value of the point would be one-half its value in ordinary times Hence a physician is paid by the law of diminishing returns the greater amount of services he gives This is unquestionably unjust and soon forces the same situation of an overworked physician, underpaid, giving hurried service To obviate this, it is possible to agree that if the morbidity of a district increases above a certain amount, physicians shall be remunerated per point of service done at the rate of the average value of the points as shown in the previous three years This would prevent the injustice of this law of diminishing returns in payment referred to above, and would be a just remuneration on a just basis Of course, under this proposed law there would be 100 per cent collection of all just medical fees, a factor which should be taken into account in considering the remuneration of physicians

The medical organization as outlined here is a well balanced scheme by which the quarrels and friction produced under the health insurance laws of the old world are avoided It gives to the medical profession the standing and the privileges for which the English physicians had to fight — that of adequate representation throughout the entire scheme on the committees before which their interests will come It prevents the incessant wrangling of the German scheme because of the false position in which the physician is there placed, in which he is forced not only to give the daily care to his patients but also to decide when they are put on and off the sick fund In this scheme this decision is relegated to the special medical officer of the funds This medical officer has other functions which safeguard the interests of the patients Because it is his duty to decide whether or not the patient can continue to receive cash benefits, he is in constant touch with the panel physician, and if affairs are not going well medically he can at all times obtain the necessary second opinion and aid to bring about the best care of the patient

All possible disputes between panel physicians and the funds or between patients and the funds are safeguarded by arbitration committees, and the whole scheme of health insurance is delegated to local organizations of funds and physicians by which the real work can be best carried out The proposed plan avoids the English mistake of huge insurance carriers with their thousands of insured scattered helter skelter in masses or individuals throughout the entire country All health insurance to be successful must be locally controlled, and the medical benefits and medical nursing are done by local control under this present scheme

The scheme outlined takes what is best in the German method of giving medical benefits sufficient to guard the health and the best interests of the patients It furnishes not only daily care, but develops the means by which a patient may obtain a second opinion for diagnosis or for therapeutics whenever it is desired The scheme as here promulgated in the dispensaries and hospitals offers not only a better method than is now in vogue, but also the very scheme through which medicine is developing and through which it is bound to develop to the highest degree in the near future — that of group medicine It offers in districts, in which there are no dispensaries or hospitals, consultants from whom the necessary second opinion may be obtained even though the development of group medicine has not proceeded so far as in more densely settled communities This health insurance scheme is also linked firmly together with the present existing powers of the health departments The standards through which the local officers of the funds are appointed are supervised by the health commissioner himself before being promulgated In each local medical committee there is a health officer with the full powers of the health department behind him, and there is in the law a provision that if the medical officers of the funds do not properly report and do not take proper cognizance of sanitation and preventive medicine in their daily work, it is a cause sufficient to bring about their trial and removal from their position Every endeavor has been made to uphold the hands of the present health authorities and continue their present great powers for good As far as organization is possible, as far as it is possible to give power and responsibility, they have been adequately linked together Every endeavor has been made to localize responsibility for the performance of each duty, and with this responsibility the endeavor has been made to give adequate power to perform it This is true of the ordinary every day medical and surgical work of the profession and equally true in the great fields of preventive medicine and sanitation of the health department There remains only the personal equation of the human machine, and the human personal equation until put to the trial is always an unknown quantity

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Medical Fossils—Occasionally I meet with men who are still living professionally in their undergraduate days, reading the same old books, and writing the same old prescriptions, both blind and deaf to the changed environment Fortunately the more intelligent of the public easily recognize these fossils and appraise them at their true worth They are interesting as relics of the past, but worthless in the present—V C Vaughan M D, *Science,* Dec 8, 1916

A CONSIDERATION OF THE SEROBIOLOGIC REACTIONS AFTER FIVE YEARS OF OBSERVATION *

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Somebody has said that the serobiologic reactions have created a new science It may also be said they have given us a new symptomatology If we regard them as symptoms and not as *reactions,* they become much easier of understanding and interpretation The lack of understanding concerning them has been due chiefly to two things First, we do not know the source of the so-called antibodies which are necessary for a positive Wassermann, or the origin of the lymphocytosis or increase of globulin content which occurs not only in the spinal fluid but in the blood as well Naturally, then, all our knowledge thus far in regard to these reactions has been obtained by the inductive method, that is, drawing conclusions from individual observations and striking an average or a percentage to be used in the formulation of general rules about them from the sum total of observation

In any knowledge obtained in this way, it is natural to expect that new observations will be reported from time to time which require some modification of previous conceptions In the second place, in the application of general laws to any particular class of cases, there are always the exceptions to be taken into consideration These reactions or symptoms were often found where, from the nature of the case, we did not expect them to occur, or, on the other hand, absent in cases in which, according to our previous knowledge we thought they ought to be If, then, we view these reactions as symptoms, which they certainly are, and study their interpretation in connection with and as we do other symptoms in any case, much of this past confusion in regard to them will disappear We do not expect to find all the symptoms of a disease present in every case Not every case of meningitis presents a Kernig's sign or rigidity of the neck Furthermore, not every case of rigidity of the neck is diagnosed as meningitis Nystagmus is a common symptom of multiple sclerosis, but it would be a serious mistake to regard every case in which the symptoms of nystagmus was present as a case of multiple sclerosis Tremor is an important and frequent symptom of paralysis agitans, yet we would fail to recognize many cases of this affection if we excluded the diagnosis because of the absence of tremor

We must learn to think of the serobiologic symptoms as we do all other symptoms and realize that their value and the interpretation which we give them is not an isolated one, but depends largely on the syndrome accompanying them In this new symptomatology, as in the old, it is not in the typical cases in which the symptoms are present that difficulty in interpretation arises, but in those in which these symptoms are irregular or only partly present

In the beginning of the Wassermann era the impression was quite general that a negative Wassermann made the diagnosis of syphilis extremely doubtful

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* Read before the Section on Nervous and Mental Diseases at the Sixty Seventh Annual Session of the American Medical Association, Detroit June 1916

* This article and the one by Dr Pilsbury which follows complete the symposium on Syphilis of the Nervous System, which was begun with the articles by Drs Schaller and Riggs and Hammes last week

We are still often confronted with the statement that the Wassermann is negative, as if the final word with reference to syphilis in the case under consideration had been spoken. We know positively at present from records made by hundreds of observers all over the world that in syphilis of all stages a serum Wassermann is found in only about 65 per cent. of the cases. We do not often find it in the primary stage. In the secondary stage it is nearly always present, and in the tertiary in perhaps from 40 to 50 per cent. of the cases. In tabes this symptom is present in from 60 to 70 per cent., in cerebrospinal syphilis in 80 per cent., and in paresis in from 95 to 100 per cent. of all the cases. In my own work, in sixty cases of syphilis without symptoms referable to the nervous system, the Wassermann was positive in thirty-nine, or 68 per cent., in eighty-one cases of cerebrospinal syphilis, in forty-three, or 53.3 per cent., in fifty-seven cases of paresis, in fifty-three, or 92.7 per cent., and in twenty-six cases of tabes, in thirteen, or 50 per cent. It ought to be perfectly plain, from a perusal of such reports, that in a large number of cases of syphilis the serum Wassermann is absent, so that we are able to say positively that the absence of this symptom in the blood serum proves nothing either for or against the assumption of specific disease.

Observation[1] has shown us that a definite relationship between the activity of the syphilitic processes and the Wassermann reaction, as well as the other reactions in the blood and spinal fluid, does not always exist. Late syphilis, bone syphilis, tabes and cerebrospinal syphilis with extensive involvement and active symptoms may give negative reactions, while, on the other hand, cases with strong positive reactions occur in persons who are apparently in good health. A case of paresis, in a complete remission, may give just as strong a positive Wassermann, or just as much of an increase of the lymphocytes in the spinal fluid as an active and rapidly progressive one. There are numerous cases which, after a mild treatment, lose their positive reactions, only to have them return after a short interval. On the other hand, there are cases which, before the beginning of treatment, are negative, but afterward become positive. In one of my cases, a positive serum Wassermann, after the administration of salvarsan intravenously, became negative and remained so, although the clinical condition gradually grew worse and the patient finally died. In another case, a positive reaction remained positive in spite of vigorous treatment, although the symptoms entirely disappeared. Practically all of the authorities at present regard a positive Wassermann as proof of a syphilis either past or present, and the weight of opinion considers that it is present.[2] In other words, a positive Wassermann is thought to mean the presence somewhere in the system of living spirochetes. The exceptions to this rule are so few, about 0.5 per cent., and the other diseases in which it occurs are so easy to differentiate from syphilis by the symptoms and history, that their importance may be considered negligible.

The spinal fluid reactions, especially in obscure conditions, and where the nervous system is involved, are of much more practical value, in both diagnosis and prognosis, than the serum Wassermann. It is quite the vogue now to have a serum Wassermann made on the patient, but to have a thorough examination of the spinal fluid is comparatively rare. In all cases with obscure symptoms referable to the nervous system, the spinal fluid examination is of vastly greater value. In my work I have been much impressed with the large number of cases in which what may be called the cardinal symptoms of nervous syphilis, such as pupil anomalies, Romberg sign, absent knee jerks, and sensory disturbances, were absent, and the symptoms present were few in number and obscure in character. In this category may be mentioned especially neuralgias and paresthesias of the fifth nerve, sciatica, Bell's palsy, persistent insomnia, symptomatic migraine, and choreiform movements not unlike the type occurring in Sydenham's chorea. In many of such cases the serum Wassermann is negative, and unless a spinal fluid Wassermann is made, only serves to mislead one.

Case 1.—A man, aged 40, whose only somatic symptom was a twitching of the left cheek and lower eyelid, subjectively had no complaints. Both the physical and neurologic examinations were negative. A history of a syphilitic infection dating back fifteen years, was obtained. The serum Wassermann was strongly positive. Likewise, the spinal fluid in 0.2 c.c., the lymphocytes were 80/3, the globulin + +, and the colloidal gold test gave the typical paretic curve. Within six months from the date of this examination although specific treatment was begun immediately and continued during this entire period in the form of weekly injections of mercuric salicylate, the patient began to get irritable and quarrelsome, his sleep was disturbed, and he soon became violently insane. This case ran a galloping course, and in a little more than a year the patient died of paresis.

This case is interesting for the reason that six months before the appearance of any somatic or psychic symptoms of paresis, how much longer, no one knows, the serobiologic symptoms of paresis were all present. It is further interesting from a therapeutic standpoint because specific treatment was begun at once, and on the first appearance of mental symptoms, salvarsan intravenously and salvarsanized serum intraspinally were administered and then followed with a course of sodium nucleinate injections, but without any result in staying the progress of the disease.

Case 2 illustrates the incongruity often existing between the clinical and serobiologic symptoms. It also shows how misleading a serum Wassermann and the symptoms which we formerly had to depend on for our diagnosis may be, as well as the value of the spinal fluid examination in every suspicious case.

Case 2.—T., man, aged 45, married, American salesman, examined March 2, 1916, had one brother who died of paresis and another who had an advanced tabes. The patient had been married seventeen years, and had one child living and well; his wife had had no miscarriages. Fifteen years before he had a chancre and mild secondaries; treatment at that time consisted of yellow mercurous iodid pills for about two years. Since then he had had potassium iodid and some mercurial inunctions at intervals, but had not taken any systematic course after the first two years. The only complaint at the present time was a sensitiveness in the upper part of the nose internally and a stuffy feeling in the head as if he had a cold. These symptoms were not constant. The nose and throat specialist whom the patient consulted could find no explanation for them in the nasal passages. The patient visited me, not because of these symptoms, but for the reason that the death of the brother from paresis frightened him, and he wished to find out if any traces of his former syphilis were still present. The serum Wassermann, a luetin test and the neurologic examination all resulted negatively He was then persuaded to have an examination made of his spinal fluid This gave a strongly positive Wassermann with 0 2 c c, the minimal quantity of fluid, a Nonne + +, lymphocytes, 172/3, and the colloidal gold test reacted in the paretic zone Up to the present time the patient's condition continues good

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[1] Von Wassermann, A., and Lange, C.: Zur Frage des Entstehens der Reaktions producti bei der Serodiagnostik auf lues, Berl. klin. Wchnschr., March 16, 1914.

[2] Nonne, M.: Syphilis und Nerven System, Ed. 3, p. 813.

It is interesting to note that the origin of the infection in all three brothers was different This argues against the doctrine often expressed of a certain type of syphilis which possesses a special virulence for the nervous system and in favor of the theory of lessened family resistance which is so often observed in other infectious diseases

In a certain type of cases in differential diagnosis the globulin and lymphocyte reactions have been of more value to me than the Wassermann In many cases with organic nervous involvement the Wassermann has been absent in both the serum and spinal fluid, even when 1 c c of the fluid was used, and the diagnosis had to be made from the history, clinical symptoms and the spinal fluid findings without the Wassermann In such cases, with either no history or a negative history of specific infection, the variations in intensity of these two spinal fluid findings, carefully considered, in conjunction with the clinical symptoms, have often proved the deciding factor in making the diagnosis The following cases are illustrative of this

Case 3—B, aged 26, farmer, seen in consultation Dec 26, 1915, could give only an imperfect history on account of his mental condition There was nothing of importance in the family history It was learned from his father that he smoked and drank to excess, but on the advice of a physician had stopped drinking about five months before In June 1915, he began to have paroxysms of pain in the region of the left kidney which were thought to be due to gravel In November, he had a very severe attack of pain lasting several hours From this time on, at night, he began to whistle and sing, and kept up such a disturbance that his room had to be changed so the other members of the family could sleep During the day he seemed rational This condition remained the same until December 4, when he began to have trouble in passing urine He became unable to void it, and some difficulty was experienced in catheterizing him At the time I saw him, December 10, he was delirious all of the time, and had involuntary actions of both bladder and bowels His temperature, although it had been normal for the two days previous to my visit, varied between 101 and 101 6 The pulse ranged between 90 and 112 The patient was rather emaciated and had a slight cough Heart and lungs were negative The urine contained albumin and quite a number of red blood cells The inguinal glands were distinctly enlarged, also, two epitrochlear, about the size of a split pea, were present on each side There was a general tendency to a coarse tremor A suggestion of ankle clonus and a positive Babinski on the left side were the only somatic symptoms observed in the neurologic examination The serum Wassermann was negative A spinal puncture was made December 11 On that day the temperature reached 103 The spinal pressure was slightly increased The spinal fluid was clear, Nonne, +, lymphocytes, 20/3, spinal fluid Wassermann negative with 0 2 and 1 c c of fluid The colloidal gold test gave what might be called a freak reaction, with no change in the first tube, a reddish blue in the second, blue in the third, and no further changes in the remaining tubes On the same day of the puncture mercurial inunctions were begun On the following day, the patient became worse and went into an unconscious condition in which he remained for a week

In this case the enlarged epitrochlear and inguinal glands, as well as the history of development, with delirium coming on at night and disappearing during the day, led one to suspect syphilis On the other hand, the emaciation, slight cough, and the high temperature caused one to feel that tuberculosis was also a probability to be reckoned with From the history and the neurologic examination as well as the spinal fluid findings, it seemed quite certain that the case was a meningitis and that this meningitis was either syphilitic or tuberculous in character After careful consideration of both the reactions and symptoms, tuberculosis was excluded, chiefly because of the mild degree of intensity of the globulin and lymphocyte reaction The position was taken that in any case of tuberculous meningitis in which the symptoms were so extensive and severe, both the globulin and lymphocyte reactions would be much increased The mildness of these reactions was thought to be absolutely out of harmony in a tuberculous meningitis manifesting such acute and extensive symptoms The negative Wassermann in the blood and spinal fluid was given the importance only which should be given to any negative symptoms We know absolutely that we cannot exclude syphilis because the serum Wassermann is negative, and we must come to the same opinion relative to the spinal fluid Wassermann If it is absent we must not, for this reason alone, exclude the possibility of nervous syphilis, but merely apply to its absence whatever other differential diagnostic value this absence may possess It does sometimes have a very particular value, which is well brought out in the next case

Case 4—T, aged 35 merchant married, with two healthy children, stated that his father died from tuberculous meningitis, which was the significant thing in the family history The patient himself, five years before, had a tuberculous affection of the lungs which was at this time apparently quiescent He also gave a history of a specific affection dating back ten years He seemed in good health up to the time of the present illness He had been sick two weeks when I saw him He then complained of a pain in the head and back of the neck His eyes were very sensitive to light He was extremely nervous and restless, with no appetite and bowels constipated His temperature ranged from 99 to 101 The only objective symptom elicited in the physical and neurologic examination was a slight rigidity of the neck muscles The serum Wassermann was negative The spinal pressure increased The spinal fluid Wassermann in 0 2 and 1 c c was also negative The globulin was strongly positive, the lymphocytes 100/3 The goldsol test showed the greatest change in the dilutions from 1 160 to 1 640 In this case the absence of the Wassermann in the spinal fluid taken in connection with the marked increase of the lymphocytes, was very significant According to our past experience all spinal fluids in specific cases with so large a lymphocyte increase had given a positive Wassermann For this reason it was thought that syphilis could be safely excluded Accordingly the diagnosis of tuberculous meningitis was made The subsequent history of the case confirmed this diagnosis

The Wassermann reaction is, of course, the most reliable of all serobiologic symptoms when present in differentiating between nervous syphilis and other organic disease of the nervous system, but it is so often absent, even in the spinal fluid, and there are so many times when the distinction must be made without it, that I have come to depend a great deal on the globulin and lymphocyte reactions in my work The lymphocyte reaction has been especially valuable The diseases in which it occurs with a symptomatology that might be mistaken for syphilis are not numerous, and even then there is usually some factor which in itself is distinguishing, as in the case just reported of tuberculous meningitis, with a negative Wassermann and the large lymphocyte increase

The normal number of lymphocytes in a cubic millimeter has been often stated to be from nothing to five, with a borderland of nine or ten[3] According to my observation, I believe this estimation of the normal number of lymphocytes too high Five lymphocytes to 1 c mm would give fifteen in the 3 c mm in the Fuchs-Rosenthal counting chamber, while the usual count in normal cases for the whole space is certainly much less than this In the following case a pupil anomaly and the lymphocyte count were the most important differentiating symptoms

CASE 5—G, man, aged 40, clerk, unmarried, had been sick about four weeks when he came under my care, he was then incoherent, disoriented as to time and place, and unclean in his habits, with an inclination to expectorate on everybody and everything near him He complained of some headache, which was increased by coughing or sneezing His appetite was excellent, his mental state one of exhilaration and good humor, his memory very poor On account of the mental condition, no past history or history of a present illness was obtainable Physically, his condition was good Pulse and temperature were normal, urine examination was negative Station was bad, and when he attempted to walk he staggered like a drunken man He did not lie still for a second when awake, but kept twitching and jerking, like a person with an aggravated case of chorea The right pupil was larger than the left, but both reacted to light No other pupil anomalies were observed The patient's articulation was good, but he was coarse and loud in his talk Spinal pressure was not increased Both the serum and spinal fluid Wassermanns were negative The globulin reaction was also negative and the lymphocyte count was 18/3, just one more to the cubic centimeter than is given as normal Brain tumor or cerebrospinal syphilis seemed the most probable conditions to be considered However, on account of the number of lymphocytes the latter diagnosis was made This patient made a good recovery with mercurial inunctions and intravenous injections of salvarsan After his recovery a history of specific infection of twelve years' duration was obtained

When even a slight increase in the number of lymphocytes is often so important in deciding the diagnosis, the necessity for obtaining the spinal fluid absolutely free from blood can be readily appreciated The faintest trace of it will give a positive Nonne and a lymphocytosis, and if not detected, lead to erroneous conclusions

The study of these reactions in the spinal fluid was at first almost entirely confined to patients manifesting nervous symptoms Recently, however, a great many observations on their behavior in the spinal fluid in primary and secondary cases of syphilis without any nervous symptoms have been made M Fraenkel[4] was among the first in reporting on the spinal fluid reaction in fifteen cases of untreated secondary syphilis, without evidence of nervous involvement He found the Wassermann positive in five of these cases Dreyfus and Assmann, in a large number of examinations in secondary syphilis, found that the spinal fluid was normal in only 22 per cent of the cases In later examinations on the same patients, 75 per cent of them gave negative reactions

Wile and Stokes,[5] in an article on the spinal fluid in secondary syphilis, conclude that from 60 to 70 per cent of all cases which progress to the secondary stage show some change in the fluid, which indicates a nervous involvement In a later article on the same subject they say "We now feel our figures in our former article were too conservative and in all probability every case of secondary syphilis has an involvement of the nervous system" A consideration of these observations and others similar in character indicates to what extent the study of these reactions have changed our conceptions of syphilis and especially the syphilitic invasion of the nervous system A nervous syphilis has always been regarded as belonging distinctly to the later manifestations of that disease In the light of these recent investigations we may now believe that the nervous system shares in the general invasion of the body during the primary and secondary stages In the great majority of these cases either as a result of treatment or a naturally developed resistance, recovery takes place and the spinal fluid becomes normal Dreyfus has ascertained that in approximately 12 per cent of the syphilitics, without nervous symptoms, examined by him, the spinal fluid has continued pathologic He compares this percentage with the 12 per cent of specific organic nervous affections found by Mattauscheck and Pilcz among 4,000 army officers who had contracted syphilis In commenting on this comparison, Nonne[6] says that the conclusion lies near that these cases in which the fluid remains pathologic are the ones which later on develop the syphilogenic nervous affections The conception at present of the development of a specific nervous disease is then a latency, dating back to the primary and secondary stages, which continues latent until some exciting cause transforms the latent process into an active one Clinical experience is also in harmony with this view In one of my cases, a cerebrospinal syphilis developed several weeks after a severe head injury The patient was apparently well before his accident, but soon afterward he complained of a severe headache and became mentally very dull He also developed a hemiparesis on the right side The spinal fluid gave an increased globulin and lymphocyte reaction These symptoms entirely disappeared with specific treatment

In regard to head injuries, Nonne says, "It has been known for a long time that they can cause an outbreak of brain syphilis, and especially the development of gummatous brain tumor has been observed following such injuries" It is not rational to suppose in these cases that the nervous tissue became infected with spirochetes after the injury from some distant focus The only logical explanation is that these germs were already present in the injured tissues in a latent state, and the injuries so lessened the normal tissue resistance that the latent process was converted into an active one

In prognosis, as has been stated, and as we have seen in the cases reported, neither the number of the reactions present nor their degree of intensity bears any direct relationship to the rest of the symptomatology In Case 3 the syphilitic process was an exceedingly acute and progressive one, yet the only reactions present were the globulin and lymphocyte, and these were mild in character On the other hand, in Case 2 there was entire absence of subjective and somatic symptoms and yet the reactions were all intensely positive Case 1, with a slight twitching of the face as the only somatic or subjective evidence of nervous disease in which all the reactions were strongly positive and which in a short period of time developed into a galloping paresis, would seem to point to a gloomy prognosis when such conditions exist Nonne has reported in this connection thirteen cases in which the reactions were positive, both in the blood and in the spinal fluid Three of these cases were progressive in character, the other ten remained stationary over a period of five years The following case is quoted from Nonne [7]

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[3] Nonne M Syphilis und Nerven System Ed. 3 p 90

[4] Fraenkel M Weitere Beitrage zur Bedeutung der Auswertungs methode der Wassermann reaktion in Liquor cerebrospinalis, Ztschr f d ges Neurol u Psychiat 11, Nos 1 and 2

[5] Wile and Stokes A Study of the Spinal Fluid with Reference to the Involvement of the Nervous System in Secondary Syphilis Jour Cutan Dis September 1914 p 607

[6] Nonne M Syphilis und Nerven System Ed 3 p 139

A man, aged 62, formerly a captain, has been a tabetic for fifteen years Mercurial treatment, twelve years ago Since then no specific treatment The pupils do not react to light Knee jerks are absent Hitzig's zone Four years ago Wassermann in blood, + + + Wassermann in spinal fluid, + + with 5 c c of fluid Globulin, +, lymphocytes, + At present practically no change in either the reactions or somatic findings The patient feels well and works every day

This case is not an isolated case, but one of a series of cases which Nonne has observed

The next case is a report on the reactions in an old case of tabes, the first symptoms of which appeared about twenty years ago

Case 6—This case has gradually progressed in a halting way during all of these years and is still advancing The chief discomforts now are a high degree of ataxia, lightning pains which are exceedingly severe in character, and loss of bladder control Feb 15, 1915 the serum Wassermann was slightly positive, spinal fluid examination pressure, normal, globulin, negative, lymphocytes 3/3, colloidal gold test typical in the syphilitic zone, spinal fluid Wassermann, negative in 1 c c March 1, 1916, a little over a year later, the serum Wassermann was negative, spinal pressure normal, globulin, negative, lymphocytes, 6/3, spinal fluid Wassermann negative, colloidal gold test still in the syphilitic zone Except for the colloidal gold test, the spinal fluid reactions, at both examinations, might be considered normal, yet during the period between these examinations, this patient has been practically bedridden because of the high degree of ataxia and has suffered most severely from lightning pains

When such contradictory observations as I have cited are compared, the whole subject of the interpretation of these reactions from the standpoint of prognosis seems to be in confusion The confusion, however, is not so complete as it appears Many cases of cerebrospinal syphilis of the genuine type have been reported in which the spinal fluid became normal, either spontaneously or as a result of treatment In these cases, so far as I know, there have been no relapses reported On the other hand, observations thus far indicate that cases in which there is a pathologic fluid are never safe from relapsing It seems quite plain that we cannot consider any case of syphilis as having recovered, and this applies as much to primary and secondary syphilis as it does to the nervous type until the spinal fluid becomes normal Absence of symptoms and repeated negatives in the blood cannot be regarded as recoveries in those cases in which there is still a pathologic spinal fluid For this reason no patient should be dismissed by the syphilologist and treatment stopped without a complete spinal fluid examination In the so-called cases of parasyphilis, such as tabes and paresis, the outlook for obtaining normal spinal fluids, with present methods of treatment, except in the old *abgelaufene* type (cases in which the disease has spent itself), such as the last case reported, is rather hopeless, and in treating these cases this should be realized

The variations in intensity of the reactions in such cases or the changing of some of the positives into negatives as a result of treatment have, in my opinion, very little value from a prognostic standpoint The following explanation of the reactions in the type of cases represented by Cases 2 and 3, in which such an incongruity exists between the reactions and the symptoms, is suggested In Case 3 the process is an active one and the invasion of spirochetes is limited in extent In other words, it is an active syphilitic process of recent origin and with a good prognosis In the type represented by Case 2, the process is an extensive one The whole central nervous system is invaded, but up to the present time it is latent Sooner or later something will occur to make it active, and then the course will be rapid and severe, as it was in Case 1, in which the conditions were somewhat similar

CONCLUSIONS

The serobiologic reactions should be regarded in the same manner as the symptoms in a clinical picture They furnish only a part of the information, which must be carefully weighed in connection with all of the other facts obtained Often when other symptoms fail, they are found to be present, and give the clue to the proper diagnosis On the other hand, we must not forget that the reverse is sometimes true and they are absent, and then we must depend on the other symptoms for our diagnosis In atypical cases, hard and fast rules cannot be formulated for these reactions any more than for the other symptoms

A spinal fluid examination should be made in all cases in which symptoms are present which are referable to the nervous system, unless the etiology of these symptoms is definitely known

An examination of the spinal fluid is the surest means we have at present of discovering the presence of latent syphilis, and in all cases of syphilis before the patients are discharged from further treatment, this ought to be done, in both early and late cases

In the absence of other symptoms, its findings form the best criteria in deciding when it is safe to stop treatment In the so-called cases of parasyphilis the last statement does not apply because of the impossibility with the present methods of therapy of obtaining a normal spinal fluid

In nervous syphilis, without other symptoms, a normal spinal fluid means a good prognosis and a recovery, a pathologic one, a latency which at any time may become active

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Reporting Tuberculosis—The *Monthly Bulletin* of the New York State Department of Health reviews the excuses that physicians give for failing to report cases of tuberculosis, and states that these cannot be regarded as valid by the department All cases, no matter what the organ involved or the stage of the disease, must be promptly reported to the health officer on the special report card, even though the diagnosis was made only at death or necropsy The coroner's certificate of a person dying from tuberculosis may be accepted by the health officer in lieu of a report, but in this instance the health officer must make out a report and send it to the department A laboratory report of sputum positive for tuberculosis will not be regarded as doing away with the necessity of sending a regular report card When the clinical symptoms justify a diagnosis of tuberculosis, the case must be reported by card, even though the laboratory findings are negative for tubercle bacilli If afterward the case proves not to be tuberculosis, the physician may notify the health officer to that effect

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[7] Nonne Syphilis and the Nervous System Ed 3

MERCURIAL MEDICATION WITH SPINAL DRAINAGE *

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This is intended to be a brief paper, and few references will be given The literature of syphilis of the nervous system is now so extensive that it properly falls into various categories, though sharp divisions are not always made into clinical, serologic, etc We seem to be no nearer a valid line of distinction between paresis and cerebrospinal syphilis than we were, and most authors are becoming very cautious in their assertions as to what does and what does not constitute paresis There is no reason to suppose that there is any essential difference in the spirochetes in these two conditions, but there is experimental evidence to sustain the view that the spirochete which attacks principally the brain is somewhat different from the one which cripples the heart or assails the liver, as witness a recent communication from the Army Medical School to Dr Archibald Church[1]

On anatomic grounds, Dunlap[2] characterizes general paralysis as "a subacute or chronic inflammatory and degenerative process which goes through and through the great central nervous organs," whereas "the varieties of cerebral syphilis on the other hand, for the most part, play around the surface of the central nervous system, instead of going all through it" In making a serologic distinction, Kaplan[3] considers the colloidal gold test of more value than the Wassermann, and of course the findings in any case of nervous syphilis may have been altered by treatment Kolmer[4] says, "In cerebral syphilis the blood serum, and particularly the cerebrospinal fluid, will react positively less frequently than in general paralysis", but this is doubtful It is sometimes said that the cell count runs higher in cerebrospinal syphilis, but the largest count which I have seen, 360 cells, occurred in the fluid of a patient with undoubted paresis Darling and Newcomb,[5] in four of five cases of cerebrospinal syphilis, failed to find more than six cells, and in a fifth case never found more than 100 They lay stress on the great variation in cell count in these conditions but state that it was no greater in the one condition than in the other They, with Weston,[6] had previously reported three cases of cerebrospinal syphilis in which the cell count never exceeded 3 per cubic millimeter Two of the cases now being reported have never shown to exceed 5 cells per cubic millimeter, and one has varied from 130 to 360, all being cases of paresis

There seems to be no reason for making a distinction in treatment between paresis and cerebrospinal syphilis, and no extravagant hopes can be built on any form of treatment as yet devised in well developed cases of either condition, though prolonged remissions, even in general paralysis, may be expected with vigorous treatment in early cases Gilpin and Earley[7] assume that mercury and arsenic given by any of the ordinary routes fail to reach the cerebrospinal fluid, but this is probably not invariably true, as very small amounts of arsenic have been reported For example, Barbat[8] found 1 part per hundred thousand of metallic arsenic in the fluid immediately following the administration, presumably intravenous, of a full dose of neosalvarsan Gilpin and Earley ask, "Is it not reasonable, then, to think that if we reduce the pressure within the cerebrospinal cavity we may succeed in bringing foreign substances through the capillary walls and thus secure the direct effect of drugs such as arsenic and mercury on the nerve tissue itself?" The plan carried out on three patients reported at that time was repeated lumbar puncture, performed every week or every two or three weeks, together with mercurial inunctions Paresis taboparesis and tabes were represented, and the results were quite encouraging

On theoretical grounds it does not seem that the removal of from 20 to 40 c c of fluid once every week or two should have more than a very transient effect in reducing pressure, and it seems probable that spontaneous variations in pressure may occur from time to time, though doubtless in less degree The fluid is probably rapidly replaced after withdrawal, and it is possible, of course, that the very rapidity might have a tendency to carry over foreign substances which happened to be circulating in the blood at that particular time At any rate, the method seemed worth trying, and ten cases of paresis, taboparesis and cerebrospinal syphilis were so treated, that is, the patients were given mercurial inunctions, 1 dram six days in the week, and were punctured every two weeks with few variations In most cases the inunctions were continuous They were not selected patients, but would represent about the usual hospital run, and some would be a severe test for any form of treatment The amount of fluid withdrawn varied from 20 to 35 c c, the Wassermann was performed with 1 c c of fluid by Dr Clarence Emerson, and the cells were counted in a Thoma-Zeiss chamber with the high power On the whole, the results are not striking, and similar effects might reasonably be expected without spinal drainage One of the patients is decidedly better and several are slightly so, but the one who improved the most had an alcoholic as well as a syphilitic factor None have been treated in this fashion for more than about four months, and none for less than ten weeks, and this is perhaps not time enough for a maximum amount of benefit

REPORT OF CASES

Case 1—White man aged 35, laundryman, married, no children, always intemperate admitted Jan 10, 1916, acquired syphilis at the age of 19 and has had gonorrhea several times with resulting stricture He had a little treatment following chancre, but probably not very much He first showed signs of mental disturbance in July, 1915 after drinking heavily He was excited, nervous, sleepless, suspicious and threatening He spent ten weeks in a general hospital before commitment, and received specific medication, including two intraspinal treatments On admission he was found well oriented, with little disturbance of conduct aside from irritability Right pupil was large and rigid to light, left moderately responsive to light and distance Knee jerks were exaggerated, cremas-

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* Read before the Section on Nervous and Mental Diseases at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Church Archibald Some Modern Views of Syphilis of the Nervous System, THE JOURNAL A M A May 20 1916 p 1596

[2] Dunlap Charles B The Pathology of General Paralysis Am Jour Insan October 1914 p 249

[3] Kaplan D M Serology of Nervous and Mental Diseases Ed 1 1914 p 191

[4] Kolmer John A Infection Immunity and Specific Therapy Ed 1 1915, p 462

[5] Darling Ira A and Newcomb Philip B The Correlation of Clinical and Serological Findings in Paresis and Cerebrospinal Syphilis Am Jour Insan January 1916 p 449

[6] Weston Paul G Darling Ira A and Newcomb Philip B The Colloidal Gold and Other Tests Applied to the Spinal Fluid in Psychiatry Am Jour Insan April 1915 p 775

[7] Gilpin Sherman F and Earley Thomas B Drainage of Cerebrospinal Fluid as a Factor in the Treatment of Nervous Syphilis THE JOURNAL A M A Jan 22 1916 p 260

[8] Barbat J H Finding of Arsenic in Cerebrospinal Fluid Following Intravenous Administrations of Neosalvarsan California State Jour Med 1915 13, No 11 abstr THE JOURNAL A M A Dec 18 1915 p 2199

teric, abdominal and gluteal reflexes absent Slight muscular unsteadiness was present The Wassermann reaction was positive in blood serum and later in spinal fluid (Table 1) A diagnosis of cerebral syphilis was made At present the right pupil is large and fixed, while the left reacts only a very little to light The knee jerks are about as they were, and there is about the same amount of muscular unsteadiness The patient is fairly reasonable in his conduct, and cooperates well in treatment

TABLE 1—CEREBROSPINAL FLUID IN CASE 1

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wasser mann 1 c c
2/10	++	++		40	25	++++
3/24	++	++	+	24	30	++++
3/10	++	++	+	34	35	++++
3/24	++	++	+	?	30	++++
4/ 6	++	++	+	31	30	++++
4/20	+	++	+	30	35	++++
5/ 4	+	+	++	16	30	++++
5/18	+	+	+	27	35	++++
6/ 1	+	+	+	28	25	++++

Case 2—White man, aged 52, carpenter, wife dead, three children admitted Sept 28, 1915, denied intemperance and venereal infection Trouble had been steadily progressing for about two and one half years, ataxic gait, speech, etc, and delusions that people were stealing his tools On admission the patient showed disorientation, impairment of memory and judgment and slight euphoria Argyll Robertson pupils were present, knee jerks absent, speech was defective and writing impossible On account of extreme ataxia, the patient was kept in bed Blood serum Wassermann was reported negative, Oct 12, 1915 A diagnosis of taboparesis was made Spinal fluid later was positive (Table 2) This patient has not improved in any essential respect under treatment

TABLE 2—CEREBROSPINAL FLUID IN CASE 2

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wasser mann, 1 c c
2/15	++	++		35	15	++
2/29	++	++	++	37	25	++++
3/14	++	++	++	40	25	++++
3/28	+	++	+	23	25	+++
4/12	++	++	++	46	25	++++
4/26	+	+++	++	24	20	++++
5/10	+	++	++	24	25	++++
5/24	+	+	++	89	22	

Case 3—White man, aged 55, farm laborer, divorced, three children, admitted Jan 11, 1916, acknowledged alcoholic intemperance, but denied venereal infection At time of admittance he was confused, disoriented, stupid and apparently demented, but later much improved mentally The left pupil was large and fixed, the right reacted to light and distance Knee jerks were a little exaggerated, cremasteric and abdominal present, gluteal absent, no speech defect A provisional diagnosis of alcoholic insanity was made, after spinal fluid findings, changed to cerebrospinal syphilis with alcoholism January 21, Wassermann was positive in blood serum, February 17, doubtful in spinal fluid Patient is better mentally and cell count has descended from 223 to 38 per cubic millimeter

TABLE 3—CEREBROSPINAL FLUID IN CASE 3

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wasser mann 1 c c
2/17	+	++		223	20	+—
3/ 2	+	++	+	123	20	+—
3/16	+	+	+	120	25	—
3/30	+	+	+	120	25	++
4/13	+	+	+—	63	25	+
5/ 1	+	+	+	73	30	++++
5/15	+	+	+—	64	25	++++
5/29	+—	+	+	38	30	
3/16				Blood serum		++++

Case 4—White man, aged 43, salesman, admitted Jan 21, 1916, married, two children living, wife had a miscarriage at six months, one seven months, fetus lived a few hours, one child, the first, which died at 12 days and another which died at 10 years, having abnormally large head and deformed lower extremities, presented a history of intemperance and of gonorrhea, but none of syphilis Three weeks before commitment, the patient complained of sudden feeling of distress on lifting a heavy weight, and soon afterward became increasingly talkative and affirmed that an uncle in Chicago had left him $100,000 He said he was well and his wife was ill and that he had perfected a scheme to keep his balance in the bank the same without making fresh deposits When admitted patient was a little euphoric and showed defect of judgment, but not of orientation and apparently not of memory The right pupil was slighly larger than the left, but both were rigid and very small, even in absence of light There was central dimness of vision in the left eye field, described as a misty appearance There was history of probable meningitis at the age of 3, followed by squint which later disappeared Knee jerks were present, cremasteric, abdominal and gluteal reflexes absent There was no ataxia, no marked tremor or unsteadiness, no speech or writing defect March 18, blood Wassermann was + + + A diagnosis of paresis was made In a general way the patient certainly shows some improvement, that is, he is more reasonable, his delusions are less in evidence, and he has regained much of the flesh that he had lost, but there is no marked change in the spinal fluid

TABLE 4—CEREBROSPINAL FLUID IN CASE 4

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wasser mann 1 c c
2/10	+	++		72	25	++++
3/ 4	+	++	+	63	30	++++
3/18	+	++	++	60	25	++++
4/ 1	+	+	++	70	32	++++
4/15	+	+	++	77	35	++++
4/28	+	+	+	50	30	++++
5/12	+	++	+	57	35	++++
5/26	+	++	+	57	25	
6/ 9	+	++	++	91	25	++++
3/18				*Blood serum*		+++

Case 5—White man, aged 48, cigar maker, married, one child aged 20 years, admitted Oct 25, 1915, gave a history of probable chancre occurring a good many years before There was mention in the physician's return of sexual abnormality for ten years, the exact nature not known The symptoms began about July, 1915 with sleeplessness, restlessness, later hallucinations of hearing and delusions of plotting There was no marked alcoholic factor When admitted, the patient showed no disturbance of orientation, but had delusions of influence and acknowledged hearing voices, especially at night He was good-natured, but not euphoric. He had a noticeable speech defect and a little defect in writing The knee jerks were slightly exaggerated but pupils normal, cremasteric and abdominal reflexes present He was paroled from November

TABLE 5—CEREBROSPINAL FLUID IN CASE 5

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wasser mann 1 c c
2/19	+	+		5	30	—
3/ 4	+—	—	—	1	30	++++
3/18	+—	—	—	4	25	—
4/ 1	+—	—	—	2	20	—
4/15	+	+—	—	4	22	+++
4/28	+	—	—	4	25	++++
5/12	+	—	—	1	25	++++
5/26	+—	+—	—	1	20	
6/ 8	+—	+—	—	2	25	—
3/18				Blood serum		+

24 till January 16 The blood Wassermann was positive, March 18 A diagnosis of paresis was made The spinal fluid Wassermann was variable, and never more than 5 cells were present The physical condition is essentially unchanged, hallucinations and delusions are less prominent, and efficiency is increased The patient takes care of the clothing room in the ward in which he resides

Case 6—White man, aged 44, laborer, divorced, two children, admitted Sept 18, 1915, gave a history of nervousness, speech difficulty and mental confusion for about three months before commitment When admitted he was quiet, a trifle confused, without definite or systematized delusions There was no marked disorientation, but some impairment of memory as evidenced by inconsistent statements Alcoholic intemperance and venereal infection were denied The pupils were slightly unequal and very sluggish to light, knee jerks exaggerated, cremasteric and abdominal reflexes present, movements and station a little unsteady, and speech and writing defective February 23, the blood Wassermann and also the spinal fluid were + + + + A diagnosis of paresis was made The number of cells has been quite variable, but there has been little variation in the intensity of the Wassermann reaction The pupils are now almost rigid to light knee jerks very much exaggerated, tremor and unsteadiness greater than at time of admittance The patient cannot be said to have shown the least improvement under treatment

TABLE 6—CEREBROSPINAL FLUID IN CASE 6

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wassermann 1 c c
2/23	+	+++	+	110	30	++++
3/ 8	+	+++	+	213	25	+++
3/23	++	+++	++	170	30	++++
4/ 6	++	+++	++	150	30	++
4/20	+	+++	+	140	30	++++
5/ 4	++	++	++	156	30	+++
5/18	++	++	++	[illegible]	30	++++
6/ 1	+	++	++	130	30	++++
2/23				Blood serum		++++

Case 7—White man aged 38, telephone man, married, who had had no children and whose wife had had no miscarriages, who was not intemperate and who denied venereal infection, admitted Aug 22, 1914, was well oriented, his memory was good, no delusions were present, but his condition was not fully appreciated The pupils were equal, but rigid to light Knee jerks present, also abdominal cremasteric and gluteal reflexes There was considerable tremor, and well marked ataxia There was considerable increase of globulin and albumin, and 115 cells per cubic millimeter in the spinal fluid A diagnosis of paresis was made Mercurial inunctions and potassium iodid were ordered There was a mild paretic seizure Oct 14, 1915 The number of cells has varied considerably, but the number was high at the last count, and the Wassermann still strongly positive The pupils are still rigid, the left knee jerk much exaggerated, and the patient is more tremulous and unsteady now than he formerly was He still does not appreciate his actual condition

TABLE 7—CEREBROSPINAL FLUID IN CASE 7

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wassermann 1 c c
2/24	+	++	++	52	25	++++
3/ 9	+	++	++	41	25	—
3/25	+	+	++	33	25	++++
4/ 6	Specimen contained blood			50*	35	++++
4/10	+	++	++	60	20	++++
5/ 4	+	+	++	40	20	++++
5/18	+	+	+	60	25	+++
6/ 1	+	+	+	150	25	++++

* Other than red cells

Case 8—White man aged 47, tailor married, three children, admitted Nov 20 1915, had no history of intemperance or venereal infection About two years before commitment his gait became peculiar and he began to drop things He became very nervous and so forgetful that he could not go on a simple errand and bring back what was wanted About one year before commitment, spinal fluid was negative When admitted, patient was disoriented and showed considerable mental confusion, impairment of memory, judgment, etc The pupils reacted to light and distance the knee jerks were a little exaggerated, and there was slight defect in speech, writing and gait A diagnosis of paresis was made December 6, the spinal fluid showed a slight increase in globulin, but there were only 4 cells per cubic millimeter, the Wassermann reaction was negative in both blood and spinal fluid Since then the spinal fluid Wassermann has been positive three times and negative twice, and the number of cells has never exceeded four There has never been more than a slight increase of albumin and globulin, and the Ross-Jones test was positive only once The knee jerks are now more exaggerated than they were while tremor and muscular unsteadiness are more pronounced

TABLE 8—CEREBROSPINAL FLUID IN CASE 8

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wassermann 1 c c
2/20	+	+	—	0	30	+++
4/ 1	+	+	+	1	25	—
4/15	+—	+	—	4	25	—
4/28	—	+—	—	0	22	++++
5/12	+	+—	—	1	30	++++
5/26	+	+—	—	1	25	
6/ 9	+	+	—	3	20	+
1915 12/ 6	+	+—		4	25	—(Blood serum—)

TABLE 9—CEREBROSPINAL FLUID IN CASE 9

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wassermann 1 c c
3/14	+++	+++	+++	290	25	++++
3/28	++	+++	++	210	28	++++
4/12	++	+++	++	130	30	++++
4/26	++	++++	+++	277	25	++++
/10	+	+++	+++	203	28	++++
5/24	+	+++	+++	109	30	
6/ 8	+++	+++	+++	360	30	++++

Case 9—White man, aged 40 laborer, single, with history of intemperance, but none of venereal infection, said to have delusions of God directing his movements, etc, when admitted, Oct 11, 1914, had ideas of grandeur and unlawful detention ideas of reference and hallucinations of sight and hearing The pupils reacted moderately, knee jerks were exaggerated, abdominal and cremasteric reflexes were present and gluteal absent Later on, disturbance of speech appeared A diagnosis of paresis was made Blood Wassermann was positive when admitted The spinal fluid Wassermann is still + + + + and the patient is no better physically, though he is more tractable than he was at one time June 8, the spinal fluid contained more cells than at any previous time, 360 per cubic millimeter

TABLE 10—CEREBROSPINAL FLUID IN CASE 10

Date 1916	Globulin (Noguchi)	Albumin (Trichlor acetic Acid)	Ross Jones Test	Cells	Amount c c	Wassermann 1 c c
3/16	+	+	+	46	30	++++
3/30	+	+	+	20	25	++++
4/13	+	+	+	17	25	++++
5/ 1	+	+	+	80	25	++++
5/15	+	+	+	85	30	++++
5/29	+	+	+	56	26	
3/16				Blood serum		++

Case 10—White man aged 36 painter single, formerly intemperate, admitted March 14, 1916 one year before com-

mitment had an attack of mental disturbance which lasted about three weeks Shortly before commitment he became excited, sleepless and confused, with hallucinations and illusions When admitted, patient acknowledged having had both gonorrhea and syphilis at the age of 18, but said he was treated and cured Delusions were present and some mental confusion Pupils were sluggish to light, knee jerks exaggerated, tremor present, speech and writing a little defective The Wassermann reaction was + + in the blood and + + + + in the spinal fluid A diagnosis of paresis was made The fluid Wassermann was the same at all examinations since admission Cells have varied from 17 to 85 per cubic millimeter The right pupil is now a little larger than the left and decidedly sluggish to light Otherwise the patient is about the same, except that he is steadier and more efficient in his work

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS SCHALLER, RIGGS AND HAMMES, BALL, AND PILSBURY

Dr J Henry Barbat, San Francisco During the past two years I have been doing experimental work regarding the permeability of the meninges to drugs Patients were given salvarsan, neosalvarsan, and later arsenobenzol intravenously, and immediately after the injection as much spinal fluid as possible was withdrawn by lumbar puncture, usually as much as 60 c c The second half of this fluid was tested for arsenic Twenty-four hours after the first tapping, 20 c.c. of spinal fluid were withdrawn Within one hour after the injection of arsenobenzol, 20 c c of blood were taken and the serum separated from the clot These specimens were all sent to the Hygienic Laboratory at Washington to be tested for arsenic About four fifths of the arsenic is fixed in the body cells within one hour after its intravenous administration leaving only one fifth in the blood, a proportion of about 1 100 000 When neosalvarsan is used a slightly larger proportion of arsenic gets into the spinal fluid than with arsenobenzol In my series of cases the analyses showed an average of 10 per million arsenic in the blood, largely in the serum In the spinal fluid which was drawn twenty-four hours after the administration of the drug, there was found from a trace to 10 per million, the average being one fourth per million The second half of the fluid drawn immediately after the injection of arsenobenzol showed traces of arsenic in 40 per cent of the specimens Carr and Hall demonstrated arsenic in the spinal fluid after the administration intravenously in a very small percentage of cases J J Viton of Buenos Aires showed clearly that the permeability of the meninges depends on whether or not they are irritated or inflamed The injection of homologous serum into the spinal canal will produce leukocytosis, injection of horse serum will produce leukocytosis plus pain and fever Therefore irritation of the meninges, whether by chemicals or other means, will increase the permeability This brings us to the question as to whether the intraspinal injection of any drug has any specific effect in the treatment of any of the cerebrospinal syphilitis lesions I believe that the effect of all these intraspinal injections is to set up a meningitis which, by increasing the blood supply, permits the passage of antibodies and drugs into the spinal fluid enabling them to act more efficaciously on the spirochetes This condition can more easily be brought about by the technic which I spoke about at first

Dr Tom A Williams, Washington, D C One feature of syphilitic meningitis which is so frequently forgotten is the fact that in the tertiary phase, at least, it is not a serositis, the inflammatory condition is not one of the surface of the membrane, but of the deeply seated blood vessels in the membrane. The lymphocytotic reaction is a mere epiphenomenon, so to speak, quite different from the leukocytotic reaction in epidemic meningitis or in pneumococcic meningitis Therefore, in order to affect the disease one must attack the perivascular lymphatic spaces in the meninges What Dr Barbat has just said is, I think, very true Three years ago I considered the real elements of advantage in intraspinal medication I need not repeat what I said in view of what Dr Barbat said Sicard, at the very beginning of salvarsan therapy, made a practice of injecting intraspinally weak salts of mercury while at the same time mercurializing or salvarsanizing the patient, with exceedingly gratifying results, which are not inferior to those which have been so often vaunted as peculiarly efficient by persons using salvarsanized serum I believe that the meningeal reaction produced by the introduction of foreign substance intraspinally is responsible for any advantage there may be, although we do not really know that there is any permanent advantage in intraspinal medication, which must always be combined with systemic medication, whether by salvarsan, preferably, or by mercury as was formerly the case I do not presume to speak of the problem of paresis, for it would take much longer than five minutes to even lay down the ground for it I am talking only of the syphilitic meningitis which eventuates in what is called tabes dorsalis

Dr Albert E Sterne, Indianapolis In the last seven years I have seen no reason to change the estimation of the results of treatment of any form in cases of the kind under discussion I desire to place particular emphasis on the fact that no neurologic examination is complete without a thorough bioserologic survey of each individual case, for undoubtedly the biologic findings guide us correctly, to my mind not only diagnostically, but, still more important, prognostically But so far as the ultimate results of treatment are concerned, I have not been able to convince myself that there is any marked gain We have, possibly, a better temporary result than was formerly secured But the crux of this whole question seems to me to lie in two directions First, we must not fail to recall that we achieved excellent results in the vascular forms of syphilis, not only of the nervous system, but of the body as a whole, but particularly of the nervous system, by the methods employed previous to the use of salvarsan Some of the forms of vascular syphilis affecting the nervous system recovered then as now The results of treatment of parenchymatous syphilis are hardly better now than formerly The happy aspect of the present methods of treatment is this Personally, I believe that every nervous system is affected early after the primary infection If the patient has headaches within the first few weeks following primary infection, his spinal fluid should be examined, when in most instances it will be found to bear the characteristics of an invasion of the central nervous system That is the time, if any time, when we might expect to accomplish something, not only positively curative, but also prophylactically for the prevention of the tertiary degenerative changes in syphilis of the nervous system That is the time to give intraspinal medication I do not care what form you use, whether arsenical or mercurial preparations It has been our habit recently to use the drainage method, but in a slightly different way When we give an intravenous injection we immediately follow it with a spinal puncture, injecting nothing into the spine, but withdrawing spinal fluid, and creating, so to speak, a wave toward the cerebrospinal axis Until we know positively the direction and extent of the flow of the cerebrospinal fluid, we cannot definitely say how much may be gained in this way Owing to the characteristics of the choroid plexus we cannot say, with any degree of assurance, how much or little can be attained, but there is evidence pointing to the fact that we have rapid regeneration of the fluid, and furthermore that at least part of the spinal fluid is derived from the blood With the influx into the cerebrospinal axis we have reason to believe that whatever drugs we place in the blood current will soon reach the cerebrospinal axis after lumbar puncture The time to give intraspinal medication is early, and intravenous medication followed within twenty minutes by spinal puncture would seem to be worthy of trial, in place of direct intraspinal application

Dr Julius Grinker, Chicago I would like to ask Dr Schaller if the presence of the knee jerks in thirteen of the thirty-five cases was really controlled by him, or was it only reported by his interns? It has been my experience that interns will occasionally report the knee jerks as being present in tabetics, when there is only a pseudoreflex present, which is often found in tabetics, and which is merely a voluntary response If he has controlled the findings then the percentage of present reflexes in tabes is rather high in his service My own observation of hundreds of cases of tabetics gives me a smaller percentage of present tendon reflexes As regards the Achilles jerk, it has been my experience that this reflex is very often lost before the knee reflex Referring to the negative Wassermann findings in the spinal fluid of eleven cases of tabes, I wish to ask Dr Schaller whether they were not advanced cases of tabes I have in mind just one case of tabes in which the patient had positive Wassermann findings with symptomatic improvement after intraspinal injections of neosalvarsan by the Swift Ellis method He left the hospital, but returned after a year when repeated Wassermann tests corroborated by an outside laboratory failed to give positive tests The man at his second entry had an advanced case of tabes, he was extremely ataxic and there was no doubt that he was worse, and yet the Wassermann reaction was negative With reference to intraspinal injection of either salvarsan or salvarsanized serum in paretics, and the following remission of symptoms, I think the so-called favorable results are deceptive We must not delude ourselves into believing that we are causing improvement when the improvement is simply a natural phenomenon incident to the disease I have seen tabes patients with extreme ataxia come to the hospital with crutches and after a few injections of salvarsan go out without assistance, but even here we must use extreme caution in estimating the beneficial effects Besides, intraspinal injections are not as harmless as one may imagine In two cases paraplegia followed an injection, in two other cases (not my own) death was the result of intraspinal injection of neosalvarsan The injection of neosalvarsan, even the small dose of 3 mg, has in many instances caused disastrous effects Mercurialized serum injections given intraspinally have in my hands caused violent reactions, high temperatures, and extreme pain In some of the cases there was improvement and in others the reverse It appears then that at the present time we are not quite prepared to say which is the best mode of treating nervous syphilis Certain it is that in both tabes and cerebrospinal syphilis the Swift-Ellis treatment, the most harmless of any deserves still further trial In paresis we may use this method experimentally, though I have still to see the first patient who improved under treatment by any means whatever

Dr Mathew A Reasoner, Washington, D C As to experimental studies of strains of the specific organism of syphilis, a word may not be amiss As the result of isolating twenty strains from various sources, two from the spinal fluid of patients suffering from nervous syphilis and eighteen from chancres and mucous lesions we have satisfied ourselves that there are variations in the strains of syphilis we have studied I am not prepared to say that there are any variations in the morphology of the strains of spirochetes which we have seen In one strain which I obtained from a man who probably committed suicide three months afterward, I did find choroidal involvement in the rabbit This same manifestation was observed with our nervous strains With reference to one statement by Dr Ball, the serobiologic findings must be considered in conjunction with the others In the absence of history or manifestations, one positive Wassermann should not be accepted as proof of syphilis Some one might have mixed the tubes, not to mention other possible sources of error The test should be repeated And likewise in the presence of suspicious manifestations, a negative Wassermann will not be accepted as proof that syphilis does not exist Other methods may be needed to prove it

Dr George H Moody, San Antonio, Tex Excluding here a consideration of all syphilitic affections except paresis and tabes, and coming directly to the question of their treatment, we recall that two or three years ago some believed they had had and were reporting recoveries as the result of arsenical treatment and that a year ago it was practically decided that no patients were getting well It seems to me that all the papers and discussions at this present meeting lead us definitely to our same former position that nobody is recovering from paresis or from locomotor ataxia I ask the essayist if they have observed any deleterious results following the administration of arsenic in large doses? I am afraid that in a few of my cases the degeneration in cases of paresis, especially, has been more rapid after heroic arsenical administration, such as is being advocated and administered I am not certain of this and would like to be convinced a little further if there is any evidence leading to such conclusion Dr Riggs has reported definitely that there seems to have been marked improvement in many cases All of us, perhaps, have had similar observations I know also that many of these patients improved before we gave arsenic at all, under the mercurial treatment, some of them becoming so much improved that for a little while we almost believed them well The point is, Are there any cases in which we are making patients worse as a result of the arsenic? We are now agreed, I think, that formerly we did degenerate many of our patients with paresis and locomotor ataxia by the long administration of heroic doses of the iodids and I believe that none of us are administering them this way to patients at this time Shall we later come to believe that the heroic treatment by arsenic may degenerate some of our patients with paresis and tabes?

Dr Henry F Stoll Hartford, Conn I would like to ask some one who has given more intraspinal treatments than I to explain the following Three patients recently treated were given salvarsan, and within an hour the spinal canal was drained practically dry The next day the patient was given an intraspinal injection In this case the Wassermann reaction in the fluid obtained on the first day was ten times as strong as on the second day, i e, it took ten times as much fluid to get complete inhibition the second day I do not know whether to interpret this as indicating that the newly formed spinal fluid had not had time in which to develop fully its Wassermann bodies, or whether it means that some of the salvarsan had gotten into the spinal fluid

Dr W F Lorenz, Mendota, Wis I doubt the value of removing spinal fluid with the hope of increasing the amount of contained arsenic This practice would seem to me analogous to catheterizing the bladder and by the creation of a vacuum hope to abstract from the blood toxins that may be present It seems to me that the difference in the chemical composition of cerebrospinal fluid and blood plasma is so great that one must conclude that the former is not a simple transudate or filtrate but the product of a secretory tissue Viewing it in that light, a negative pressure on one side would hardly affect the composition of the secretion Several years ago I reported traces of arsenic in the spinal fluid after the intravenous administration of salvarsan In regard to negative Wassermann reactions in syphilitics, I recently succeeded in obtaining a positive reaction with the globulin fraction of such a negative serum The albumin fraction was negative and antagonistic to the binding forces contained in the globulin I could by varying the amounts of globulin and albumin from the same serum create a negative or positive reaction

Dr James B Ayer Boston I thoroughly believe that we can treat successfully a paretic, only we must get the case early I believe that the chief value of all this work during the past five or six years is that it is pushing us back more and more toward the original lesion, so that now the feeling is that we should get patients with nerve syphilis in the secondary stage or the very earliest tertiary stage, and begin the treatment then It sounds radical, but I believe it is rational On the other hand, if we do get a patient late, perhaps after he has had syphilis for five years, if we can pick him up on some slight symptom and find that he is suffering from cerebrospinal syphilis, I believe that often the patient can be cured Perhaps you cannot prove that a seeming neurasthenic is going to be a paretic, but if you find the reactions strongly positive in the blood and spinal fluid, if you get the colloidal gold reaction, you can feel quite certain that that man is an early paretic Such patients are being treated successfully at the present time If in those cases you do not do something, there is every reason to believe that the patient is going to develop general paresis and die from it Even if you save only one in one thousand, you do more than you would by letting them alone or by giving them a little something to relieve the immediate symptoms I thoroughly believe in some form of antisyphilitic serum treatment I am trying now to get serum into the brain under pressure by the lumbar route I believe that is a likely form of treatment

In regard to Dr Stoll's question of the significance of changes in the spinal fluid on two successive injections, I think the work of my colleague Dr Solomon on variations in Wassermann and colloidal gold reactions in different loci of the brain and spinal canal bears on that subject

Dr Robert Henry Haskell, Ionia, Mich I would like to ask if any of the men using the Ogilvie method of treatment have had herpes zoster develop After using the Swift-Ellis treatment, two years ago, I treated two patients by Ogilvie's method Following the initial injection the first patient developed herpes zoster in a rather unusual location He had been in the hospital for some time and there was no other herpes zoster present Two months later another patient developed herpes zoster following treatment, this time a typical shingles Was there any etiologic relation between the injection and herpes? Herpes zoster in general paralysis is not unknown Arsenical zoster is well recognized in dermatology Salvarsan intravenously occasionally has herpes following it but search of the literature has not revealed any such complication following salvarsan intraspinally The French literature contains several instances of cocain administered for spinal anesthesia producing a herpes, and following Camp's observations on spinal cords from patients receiving intraspinal salvarsan treatment, the etiologic relation in these cases appears possible and probable

Dr Malcolm Sumner Woodbury, Clifton Springs, N Y In regard to the question Dr Moody has raised, I do not know that I have positive evidence of deleterious results following subdural treatment I have seen some patients with paresis whom I though were helped by the combined subdural and intravenous methods We have been using mercurialized salvarsanized serum subdurally, supplemented by injections and inunctions of mercury The patient whose case I will report as bearing on the question is one I saw during the last few months and who appeared to be simply a psychoneurotic There was a lurking suspicion that we might have here a case of very early paresis, though physical signs were absent To corroborate the diagnosis the usual serobiologic tests were made As a result we obtained a positive Wassermann on both the blood serum and spinal fluid This patient was put on the ordinary line of treatment intravenously, subdurally and by inunction At two weeks' intervals he received three doses of the mercurialized salvarsanized serum He appeared to be feeling generally very much better Two weeks after the third dose, while coming by train to report for the fourth treatment, he was seized with a sudden manic attack His case has progressed rapidly since that time to a paretic dementia Whether the treatment stimulated the onset of the active symptoms I do not know In regard to the early diagnosis of tabes It seems to me that it is of considerable value for us to pick out the single, individual symptoms which may appear alone and indicate possible tabes I would refer to one case, not particularly unusual, in which loss of vibration sense in the legs was the only indication which we could make out on examination, and in which examination of the spinal fluid corroborated the diagnosis

Dr George A Moleen, Denver Anisocoria, mentioned by Dr Schaller, is not infrequent when tuberculosis, especially of the deeper set of lymphatic glands, is present, and when they exert an irritative influence from pressure on the cervical sympathetic I have found that to be the case Such pressure obviously causes dilatation of the pupil on the ipsolateral side In addition to the symptom mentioned by Dr Grinker, the early recognition of the loss of the Achilles reflex together with loss of the vibratory sense as estimated by the tuning-fork are also important and early symptoms With reference to paresis The first patient received five injections of salvarsanized serum, and recovered so thoroughly that he was able to leave the institution and carry on his ordinary occupation, that of salesman, and did well for a year, but took no other treatments and ignored advice to do so, after the injections But he returned to the hospital with a definite paresis, failed rapidly, and died about a month ago The second patient had three intraspinal injections of salvarsanized serum followed by mercurialized serum The mental confusion disappeared following injections, and he then came down with an apoplectiform seizure, which has left its permanent effects, with no mental symptoms Two other patients, brothers, one with distinct confusion, expansiveness and grandiose ideas, were given intraspinal injections of salvarsanized serum and left the hospital, however, continuing a mercurial course The brother was definitely paretic, with little mental change, but received the same treatment These two cases have been rendered stationary for about a year under the treatment The fifth patient went to California, was given intraspinal treatment and then returned, evidently very much confused, and had to be brought home by attendants He then had about six injections of salvarsanized serum made by the same laboratory in spite of which he progressed rapidly and died about six months after his return A patient with tabes, treated by intraspinal salvarsanized serum and doing well, after involvement of sphincters and marked diminution of visual acuity, was given three salvarsanized serum injections The patient went to New York, where five more injections were given, without changing the cytologic picture or limiting the number of lymphocytes but very little The use of iodin particularly in the form of Lugol's solution, alternated with mercury in some form (blue mass by the alimentary tract being my favorite), has to my mind been a means of at least ameliorating or checking the progress in these cases The method of administering Lugol's solution is 5 or more drops in water or milk before meals and gradually increasing to 50 or 60 drops

As to the Wassermann reaction, if we regard it from its fundamental application it is not specific I favor the clinical findings against the laboratory if there is conflict The reaction is not specific, but is rather a reaction against lipoid bodies which have been shown to be present in other conditions

Dr C Eugene Riggs, St. Paul Dr Ball's paper recalls our own experience with the colloidal gold reaction In over 90 per cent of our cases of paresis we obtained the typical paretic curve, and in over 50 per cent. of our tabetics we observed a distinctive curve, which we believe to be characteristic of tabes Also our cerebrospinal syphilitic cases have almost invariably reacted in the syphilitic zone. There are some bizarre reactions, however, that we all have noted in this colloidal gold test It is not uncommon for us to get the paretic curve in a case apparently of pure tabes I have in mind now one of our cases of tabes which gave the paretic curve This patient has been under observation for the past four years He says he is feeling well The objective signs still obtain but the important point is that there has been no development of mental symptoms, no suggestions of paresis In syphilitic endarteritis one may obtain the paretic curve A German observer has reported its occurrence in puerperal eclampsia We have observed it in disseminated sclerosis We have also obtained this curve in cases of cerebrospinal syphilis, in which the infection had occurred not more than a year previously Just what the significance of this reaction is, it will require further observation to definitely determine Eleven year ago, Dr Dana called attention to the importance of treatment of the early, "the pre-paretic" stage of paresis If we can get these patients early there is a possibility of accomplishing definite results After the disease is well established, and nervous tissues have been disintegrated, they cannot be replaced Our experience, as well as that of Cotton, Ogilvie and many others, has been that very frequently an amelioration of the disease takes place Sometimes we are able to make the patient what we call socially possible He is able to live at home under a restricted environment, much to his own and his family's satisfaction Even if we obtain only an incomplete remission, the patient may be able to straighten out his business affairs, which usually are in a chaotic condition We believe it has been demonstrated that frequency of remission is an accomplished fact as a result either of the intraspinal or of the intensive form of treatment, this means much and of itself makes the treatment of this class of patients well worth while. Answering Dr Moody's question, we have never seen a patient unfavorably influenced by the use of intraspinal medication We have under our care at the present time a paretic who had a remission and then a relapse He is now undergoing his second remission In his case, we have given forty-one intraspinal injections This man is certainly very greatly improved over what he was when he first consulted us

Dr Walter Frank Schaller, San Francisco In reply to Dr Grinker I would say that my comparative figures dealt only with the early tabetic cases As to the tendon reflexes in the lower extremity I have seen all of the cases reported, and practically without exception have examined all of them for the tendon reflexes I have been very careful about the technic, preferring the Babinski reflex hammer, as I think that this instrument is better than any of the others in common use, and is especially desirable for eliciting the Achilles tendon reflex Often instead of striking the patellar tendon with the reflex hammer, I purposely arrest the hammer just before contact in order to eliminate a possible voluntary knee jerk through suggestion I have often been impressed in certain cases by a striking difference between the activity of the Achilles tendon reflex and the patellar tendon reflex, when the former is lost, the latter is found not only to be present but quite lively instead of diminished as one might expect In regard to Dr Moleen's remark about the vibration test, I included this test under "Deep Sensibility" We use the Luer fork and very often find the osseous sensibility reduced to 4-5 on the scale

I was very much interested in what Dr Ball said about the cell count and I believe that this is one of our most accurate diagnostic tests I use the Nageotte cell chamber in which one may count cells in a considerable amount of fluid What Dr Reasoner and Dr Pilsbury had to say about the Wassermann reaction appears to me to be deserving of emphasis I do not accept a Wassermann reaction alone without clinical support as conclusive evidence of syphilis

Dr Charles R Ball, St Paul There is one point in my paper which I would like to emphasize particularly Case 2 was a patient with very active and severe symptoms but negative reactions except for a mild globulin and lymphocytosis The patient in Case 3, on the other hand, had practically no symptoms, either subjective or objective and yet his spinal fluid reactions were such as are usually found in paresis A rational explanation of the difference in the reactions in these two cases may be that in the first case we have an active process with all the congestion and pressure symptoms which accompany active processes but localized and limited in extent In the second case we have a so called latent process but widespread in character with a general invasion of the nervous system In the one case the symptoms are from two sources, first pressure due to hyperemia and swelling, second, the toxin of the spirochete Here the symptoms, due to pressure, predominate In the other case, there is no active process, and consequently, no symptoms which accompany such processes There is simply a mild and chronic toxemia which in time will have its influence on the nervous elements To my mind these two cases illustrate the difference between true cerebrospinal syphilis and parasyphilis (tabes and paresis) In the former, we have the symptoms of a localized and limited inflammation of a mechanical nature predominating The symptoms due to a toxemia are secondary while in the latter the mechanical or pressure symptoms are secondary in character and the toxic predominate The rational explanation to me of the cortical atrophy in paresis and the posterior column degeneration in tabes is that it is toxic in origin, in all probability the toxin of the spirochetes

Dr Lawrence B Pilsbury Lincoln, Neb Two years ago I reported twelve or fourteen patients with paresis treated with intravenous injections of salvarsanized serum Some did badly, two or three at least are still in the hospital apparently no worse than they were two years ago, and have had absolutely no treatment in the last two years of any sort whatever Just how much the salvarsanized serum had to do with the remissions I do not know I also have other cases with prolonged remissions without any treatment I fear that Dr Lorenz took too seriously the suggestion that substances might pass over from the blood into the spinal fluid Yet it does appear from Dr Barbat's results that a small amount of arsenic appears in the spinal fluid in some cases, and some other investigators have obtained the same result I believe it is very important that these patients if they are to be treated intensively should be treated early And if the general practitioner would only send at once to the neurologist his patients with "heat and sun stroke," "fainting spells" etc, and let the latter make a thorough examination of the blood and spinal fluid I think there would be fewer patients with paresis getting to the state hospitals later on in a hopeless stage

THE MASTOID OPERATION OF TEN YEARS AGO AND OF TODAY

BRIEF ESTIMATE OF THE ADVANCE AS MEASURED BY PRACTICAL RESULTS *

PHILIP D KERRISON, MD
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Whatever changes have occurred during the past decade in our method of operating have involved chiefly the treatment of the flaps or soft parts When men differ as to technic they differ usually in advocating either the old wide-open, gauze-packed wounds, with which we are all familiar, or some form of closed or partially closed wound

Undoubtedly a growing respect for the soft parts in mastoid surgery has led to some modifications of surgical method I shall try to show that these changes have not been haphazard, but rather the logical outgrowth of a better appreciation of laws governing wound repair

The Bone Operation—With minor differences to be noted later, the bone operation of ten years ago was practically that in use today Posterior drainage from the vault and thorough removal of diseased bone in whatever direction and to whatever distance this might lead, were then, as now, recognized as the chief surgical aims Complete obliteration of the mastoid cells and removal of the mastoid tip formed part of the prescribed technic Removal of the diploic tissue or intercellular bone structures from the zygomatic region was recognized in theory, but in practice not so generally or so thoroughly carried out as in the operation of today The necessity for removing all overhanging ledges of bone from the margins of the bony wound was insisted on by all competent surgeons In fact, the dislike for sharp and angular bone margins led often to removal of bone posteriorly considerably beyond the limit of the diseased area, this giving rise to exceedingly extensive bone excavations In skilful hands this operation, thus completed, left a large cavity walled by smooth and apparently healthy bone

Treatment of Soft Parts—The wound at completion was flushed with sterile salt solution, dried, and then packed with iodoform or sterile gauze Beginning at the aditus, gauze strips were pressed firmly into every portion of the bone cavity, and were used in such liberal quantity as to project well above the wound level The soft parts were thus held widely separated, the posterior flap being pressed well back to the posterior margin of the extensive bone excavation

Subsequent Dressings—While the outer dressings were commonly changed within twenty-four hours, the wound packing was usually not removed until the fifth day after the operation When first removed, it was not uncommon to find a perfectly clean wound surface of practically bare bone Not infrequently the appearance of the bone cavity at the first change of dressing was identical with that seen at the completion of the operation, with perhaps here and there a bare trace of beginning granulations This in the absence of fluid pus was generally regarded as a favorable condition Should pus or serum have collected at any point between the bone and gauze, it was wiped away The wound was then repacked in precisely the same fashion as the first dressing, except perhaps that slightly less pressure was employed These, or similar dressings, changed on alternate days, constituted from this stage the routine of treatment

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty Seventh Annual Session of the American Medical Association Detroit, June, 1916

Results—Generally speaking, the results obtained were fairly good and it may be stated that in a majority of cases recovery with complete elimination of the suppurative process took place As offsetting this fact must be mentioned certain recurring mishaps, which seem to have been in some degree attributable to the method in use

1 In a fairly large percentage of ultimately successful cases, healing was unduly delayed, a lapse of ten or twelve weeks or longer between operation and final healing being by no means uncommon

2 In a portion of the cases, certainly much larger than is met with today, secondary operation for removal of diseased bone was necessary

3 In a rather large percentage of cases final healing, usually considerably delayed, occurred with the formation of a permanent and unsightly depression of variable depth occupying the site of the operative bone cavity This unfortunate deformity is exceedingly rare today

4 In a considerable, and formerly puzzling, percentage of cases healing in an apparently healthy wound was delayed, sometimes indefinitely or to the point calling for secondary operation, by persistent failure of the aditus to close This, again, so far as I know, is a rare obstacle to healing in the mastoid operations of today

The foregoing represent perfectly well-defined postoperative conditions which most experienced surgeons have met with That they occur less frequently today than formerly suggests a relation of cause and effect I personally believe that no discussion of an established operation is of the least value which has not some practical aim in view In this sense, the most useful discussion would take the form of an attempted analysis of the occasional causes of failure With this purpose, I shall limit my discussion strictly to the following headlines (1) surgical treatment of the aditus, (2) surgical injuries to bone, (3) influence of pressure on tissue repair, (4) drainage versus tight packing in mastoid surgery, (5) treatment of the soft parts

Treatment of the Aditus—A stage of the simple mastoid operation in regard to which there is as yet no uniformity of practice is the treatment of the aditus Formerly the simple establishment of drainage was by many considered all that is required, and there are surgeons who still hold and maintain this view It seems to me that a rational view on this point might be stated as follows In very recent cases, in which persistent pain or severity of symptoms compel early operation, little treatment of the aditus may be necessary Why curet the aditus if lined by an intact, though swollen, mucosa, easily capable of a return to normal?

Usually, however, the tympanic lesion sufficiently antedates mastoid symptoms to make this region a seat of advanced pathologic change Generally the mucosa is eroded and partly replaced by exuberant granulations If these granulations are only partially removed from the aditus, what remains may shrink and the parts rapidly regain their normal character On the other hand, a small amount of granulation tissue left in this situation may mark the site of a focus of disease in the underlying bone Such a focus of disease, if not surgically removed, may perpetuate the tympanic lesion There is no question that many trying cases of delayed repair and some failures have been due to this cause

Granulations attached to the roof and posterior wall of the aditus may be quickly and radically dealt with Frequently a considerable mass of diploic tissue is attached to the tegmen tympani, thorough removal of which provides a much safer postoperative condition

Granulations occupying the floor of the aditus are frequently attached also to the short process and body of the incus, and greater care is necessary in order to avoid dislocation and even extraction of the incus Particularly in operating on young children is this danger a real one Removal of granulations in this situation often brings the incus into view, and sometimes also the head of the malleus In cases of longstanding tympanic suppuration, which have not reached the stage characterized as chronic suppuration, exposure of one or both ossicles by careful removal of the outer wall of the vault may be necessary in order to bring the vault into a condition favorable to prompt tympanic resolution This, however, is exceptional The contention of some surgeons that the incus should be exposed to view as a routine practice in all mastoid operations does not appeal to me as sound

Surgical Injuries to Bone—In regard to general technic of the bone operation, I would like to refer to one point only Aural surgeons have been particularly slow to see the possible danger of excessive planing or scraping of bone surfaces in mastoid surgery If the inner plates, either by intent or accident, are actually removed over any considerable area, the underlying dura through its abundant blood supply invariably and almost immediately inaugurates the formation of granulations which are the foundation of tissue repair Who has not exposed an area of dura over tegmen or covering the sinus and within a few days seen this membrane absolutely hidden by a layer of healthy granulations? On the other hand, if the boundary plate in any part of the mastoid cavity is scraped or reduced to an extent injurious to its vitality, the process of repair is either retarded or actually fails Theoretically, excessive scraping of the bone may act injuriously in two ways, namely, either by insult to the minute blood vessels within the bone, as a result of which repair is retarded until the vascular supply is reestablished, or by reduction to a point actually destructive to bone vitality Thus we may have only a superficial or surface necrosis, which later is thrown off in the discharge, or the injury may involve the entire thickness of the bone I have seen cases in which, after a puzzling period of delayed repair, the bony covering of the sigmoid sinus has come away almost as a sequestrum, thus paving the way for normal repair

When we have defined roughly but clearly the confines of our mastoid cavity, that is, have revealed in contour its various limiting plates, we shall do well to avoid overtreatment of these surfaces For example, when we have removed in bulk the cells attached to the bony covering of the sigmoid sinus, we see at first in the inequalities of this surface the outlines of the cells, now opened, lying nearest to this plate. With a curet we may easily display our skill in reducing this surface to one of even and polished smoothness. But in doing so we may seriously impair its health and vitality. This, of course, applies equally to other limiting plates of the mastoid cavity. I am convinced that many an operator has blamed himself in cases requiring secondary operation for failure to remove all diseased bone, when in reality he had erred in the opposite direction, that is, in reducing the bone in certain regions to a degree destructive to its vitality.

There are two causes for excessive curetting of bone surfaces in mastoid surgery, namely, (1) the surgeon's fear of overlooking a series of deeper cells still uncovered, and (2) a more or less general impression among aural surgeons that a smooth and even surface is per se a condition favorable to repair. I know of no evidence in support of this view. If the bone is healthy it may, and often does, withstand this treatment, but repair is retarded. If diseased, it is safer to leave uncovered dura than dura covered by diseased bone or bone which has been scraped to a degree leaving its vitality in doubt.

Influence of Pressure on Tissue Repair.—If in mastoid surgery the bone has sometimes received harsh treatment, the blood supply has received even less consideration. It must be remembered that in the old open-wound method of treatment the sole source of blood supply necessary to tissue repair was the bone itself. In addition to the loss of its supporting periosteum, to the occasional injury to bone vessels through excessive use of curets, the bone cavity at completion was subjected to the pressure of tight gauze packing. That this pressure, maintained at least through the first weeks following the operation, should sometimes influence the wound is not surprising.

Occasional Results of Pressure by Gauze Packing.—Tissue repair, proceeding normally in certain areas, is retarded or inhibited at others, at which points the bone, being deprived of its protective and nutrient granulations, suffers a loss of vitality and consequent superficial necrosis. There can be little doubt that a certain percentage of cases coming to secondary operation owe their failure to this cause.

Repair throughout the entire wound surface being retarded, epidermization from the skin margins has extended into the wound cavity, resulting in eventual recovery, but with the formation of an unsightly cavity, or depression, behind the ear.

Repair throughout the bony wound being retarded, the mucosa lining the tympanic vault has spread outward through the aditus to contiguous wound surfaces. As a result of this, closure of this part of the wound has been indefinitely delayed. The nature of this obstacle to closure of a mastoid wound has not been understood, and many patients have suffered prolonged and painful postoperative treatment and some have been subjected to secondary operation who, but for irrational pressure in the region of the aditus and antrum, would have recovered promptly.

A rational deduction from experience which would seem applicable to all fields of surgery might be stated in the form of a law, namely, that *wounds in the process of normal and healthy repair should be subjected to the least possible mechanical disturbance*. Judged by this standard, we bring still another indictment against this method of treatment. Aural surgeons have failed to appreciate that small new processes of tissue repair, delicate new granulation, rudimentary efforts at vascular anastomosis were destroyed or set back at each change of dressing.

The foregoing, in my opinion, represents the defects in theory and practice of the operative methods of ten years ago. Nor is it safe to speak of them as belonging wholly to the past, for, as in every field of endeavor, there are many men of established reputation who, with their immediate followers, are slow to abandon methods learned when they were younger.

The Blood Clot Operation.—In passing I want to say a word about the so-called blood clot operation. Its theory was based on the hypothesis that blood possesses inherent bactericidal properties, and that if the wound is closed at the time of operation, the blood collecting therein not only protects from further infection, but actually provides a reticulum, or scaffolding, through which new granulations and blood vessels are projected, the whole being converted into firm and permanent connective tissue.

A weak point in this theory is the fact that in cases of severe tympanic infection, pus from the vault may escape backward through the aditus, and that even if the blood clot occupying the mastoid cavity is not infected thereby, tympanic drainage is cut off, and tympanic suppuration may be perpetuated. That this danger is real is shown by the number of cases in which ultimate breaking down of the wound occurs. This in some cases takes place shortly after the operation, in others only after a much longer period. These considerations have brought the blood-clot theory as applied to mastoid surgery into disrepute.

While the blood-clot theory as such has never appealed to me, there can be no question as to the important influence which the operation, as originally described under that name, has exerted on the surgical methods and growth of the past decade. It at least proved definitely and beyond dispute the possibility of quicker and on the whole better average results than those obtained by the older methods. Apparently a direct result of the Blake-Reik operation was to stimulate general interest among American surgeons in any rational modification of established surgical methods aiming at quicker average results. Unfortunately the time at my disposal will not permit of even a brief review of the various modified operations which have contributed to our technical knowledge. All that I shall attempt is a brief outline of a simple end operation now in use by many practical surgeons.

Care of the Periosteum.—The initial incision behind the ear should in its central part be placed at least three eighths of an inch behind the auricular attachment. In elevating the flaps an effort to save the periosteum from injury is distinctly worth while. In children and women this is usually not difficult over the upper two thirds of the mastoid. On the other hand, in strong, muscular men, the frequently rough cortex and extensive muscular attachment may make some injury to periosteum even over the upper half of the mastoid inevitable. In any case, attention to this point is of importance, since an intact and unlacerated periosteum is distinctly favorable to postoperative healing.

Treatment of Soft Parts, Drainage.—In healthy wounds, that is, those lined with apparently sound bone and in which no dura has been exposed or even those in which a moderate exposure of healthy dura has been made, the following technic may be followed A wick of gauze, so infolded that no ravel threads may be left when it is withdrawn, is placed in the depth of the wound with one end at the aditus, the other emerging at the lower end of the wound Over this the flaps are approximated and the wound united from its upper extremity to within half an inch of its lower, or tip, end by interrupted silkworm-gut sutures The sutures are carried preferably through the entire thickness of each flap so as to approximate not only the skin, but also the periosteal, edges This is not assured by metal clips A gauze wick fills the auditory canal, and the wound is covered by the usual gauze dressing

Postoperative Treatment —The dressings are changed daily On the day following the operation the wick is withdrawn and very gentle pressure with a pad of sterile cotton is applied over the suture line to express serum or pus through the lower (open) end of the wound The wick removed is then replaced by a much smaller one, which is introduced only from three fourths of an inch to an inch into the wound Thereafter the wicks are changed at each daily dressing until there is evidence that they are no longer required

Dependence on the foregoing treatment is based on the hypothesis that the first wick used establishes a drain or pathway of least resistance along which pus escapes as long as drainage is necessary The small wicks used in subsequent dressings merely maintain the opening at the lower end of the suture line

There are two fairly reliable signs that this treatment is progressing favorably, namely, (1) progressive and fairly rapid return of drum membrane and tympanic structures to their normal appearance, and (2) progressive diminution of discharge

I would abandon this treatment and open the wound in any case in which the tympanic structures did not show progressive improvement On the other hand, I might persist during a considerable period in spite of a fairly profuse, if diminishing, discharge

Interpretation of Pus —It is almost a habit of mind to think of pus as a danger symptom, since it always indicates a focus of infection, present or preexisting In reality, pus per se represents danger only if confined or if its secretion or production is more rapid than its elimination A raw or granulating wound without secretion is, of course, a surgical impossibility Given, therefore, a partially closed wound from which we have reason to believe that we have eliminated the primary focus of infection, we need not be too ready to take alarm at a discharge which may represent only a stage of the process of repair

I have known wounds treated by this method to have every appearance of being practically healed within ten days More wounds are healed within three to five weeks Some for one reason or another do not progress satisfactorily, but after removal of sutures and separation of the flaps, there follows a more rapid process of healing than by the older method

Theoretically this plan of treatment seems to meet the following requirements It provides reasonable and adequate drainage, it utilizes every normal structure, bone and soft parts, in the process of repair, it secures the maximum vascular supply of the parts, it subjects the wound in process of repair to the least possible mechanical disturbance

Contraindications —That there are contraindications to this method goes without saying As such I would consider surgical injuries to the sigmoid sinus, physical signs of disease in an exposed sinus wall, and unusual extension of bone necrosis

Pronounced constitutional symptoms of septic absorption would also call for an open wound, since in such cases the systemic disorder, and not the local lesion, would be the first consideration

Another condition which, though not a contraindication, should be mentioned in this connection is the presence of large tonsils and adenoids, that is, of the obstructive type Two cases from my own experience will illustrate what I mean

In February last I saw, with Dr Howard Gillespie Myers of New York, a child of 3 suffering from bilateral suppurative otitis media Both membranes were bulging, though presenting small perforations The mother had been repeatedly advised to have the tonsils and adenoids removed Double myringotomy did not bring relief, even in reducing temperature Ten days after the myringotomy a double mastoidectomy was performed Following this the temperature returned to normal, but the ears continued to discharge Two months after the operation, the aural discharge still persisting, the tonsils and adenoids were removed Within one week after this operation the aural discharge ceased and both mastoid wounds were healed, leaving, however, a perforation in the left drum membrane which may be permanent

In April last I was called to see R M, a boy of 4 years, whose condition may be summarized as follows Large tonsils and adenoids of obstructive type, acutely inflamed right drum membrane with discharge through small perforation, marked tenderness over right mastoid process

In this case I decided as a first step to remove the tonsils and adenoids, the drum membrane, of course, being incised at the same time Five days later, edema over the mastoid developed, and a mastoid operation after the method here outlined was performed In this case the drum membrane healed promptly and the mastoid wound was completely healed with only a fine linear scar, just three weeks after the mastoid operation

Probably the correct deduction from such cases would be, not that the presence of tonsils and adenoids is a contraindication to any operative method, but rather that tonsils and adenoids of the obstructive type should be removed either as a preliminary step or at the same time as the mastoid operation The latter may seem harsh treatment, but children stand it, and the results justify the additional strain

If the question were asked in what essential feature the operative method here outlined differs from that originally described as the blood clot operation, I should say that a blood clot, allowed entirely to fill the mastoid cavity, may act as an obstacle to pus seeking escape, whereas I should regard as unsurgical any operation which does not take account of and provide adequate drainage

In conclusion, I need not say that I make no pretense to having described a new or original technic The method I have described is that followed by many surgeons today What I have attempted is to show the value of the soft parts and particularly the periosteum in mastoid surgery, and to point out wherein the latter methods are in better accord with sound surgical law

As to comparative results, my own experience may be stated as follows quicker average healing and lessened suffering to the patient, better cosmetic results, that is, practical elimination of unsightly depressions, smaller percentage of failures

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ABSTRACT OF DISCUSSION

DR R B CANFIELD, Ann Arbor, Mich All the records and experiments will show the tremendous difficulties we have to overcome in attempting to remove diseased bone in and about the mastoid process Still, it seems to me that the advance that has been made in the distinctly surgical technic of the operation on the mastoid during the past ten years has been along the line of more and more removing as much of the diseased bone and tissue as we can As far as the after-treatment is concerned, the end-result of the successful case is more or less always the same, no matter whether we use one treatment or another, and the after-treatment which interferes the least with Nature is the best Therefore, in deciding on what technic should be used and what advance has been made, we should operate as radically as we can without producing too much deformity, and during the after-treatment leave the case alone, to the benefit of the patient We must remember that all healing takes place in the soft parts, not in the bone, and the condition of the bone of these mastoids which we have to reopen or which we see three to six weeks after operation is a sad commentary on our after-treatment If the mastoid process has been excavated, the bone looks best immediately after the operation, it gets into a less and less satisfactory condition the more we treat it I had an opportunity to compile statistics on the first series of blood clot cases, and although I tried to compile these statistics honestly it seemed to me the paper read much more satisfactorily and gave the idea that blood clot operations are much more satisfactory than an examination of the cases would lead us to believe. I have seen fatal complications arise—cases in which the blood clot was removed better without operation, and it is decidedly a nonsurgical procedure. The best surgical technic is that which removes the greatest percentage of disease, and that after-treatment is best which interferes the least with Nature's healing of the wound

DR. CULLEN F WELTY, San Francisco I do not think that Dr Kerrison has placed sufficient emphasis on the removal of the individual cells The removal of every individual cell that can be found by the Jansen searcher has contributed more to the rapid healing than anything else in the whole field of otology To speak for myself, I rarely operate on a patient the second time That was not so ten years ago In the Politzer clinic twelve years ago, more than 5 per cent required a secondary operation The more thoroughly the cells are removed, the more sure you are of a complete cure. By removing every individual cell to hard bone, I am again assured of the fact that the healing is retarded and there will be more or less depression, granulation tissue does not spring up as readily My cases heal in from three weeks to two months This is not ideal surgery because of the long duration of healing

I do not believe in the blood clot operation because an occasional case will develop a serious brain lesion that would have gone along without any trouble by the open method Some four or five years ago, a New York otologist reported seven deaths following the acute mastoid operation by the blood clot procedure On the other hand, I wish to report 120 cases of my own of acute mastoid operation by the open method without mortality, furthermore, these cases were not selected However, I do feel that some one will devise a safe procedure that will shorten the after-treatment of acute mastoid operations, and it seems to me that it will be along the line of what is now designated as the closed operation

DR JOSEPH C BECK, Chicago Dr Kerrison's review referring to the last ten years' work on the mastoid is very instructive to those who have had anything to do with mastoid surgery You heal a number of patients quickly, and then there will be a few that will not get along, although the same technic was employed It must be something else than the technic employed I am confident that it is a causative factor such as bacteria that originally produces the disease, and the secondary changes of the bones that have to do with the way these conditions heal up There are various types of bone disease and each individual type heals differently Whether this or that method is used the result is usually the same It does, however, matter whether we have tuberculosis, syphilis, or chronic osteitis of purulent character with or without cholesteatoma In discussing this subject of healing we ought to separate acute from chronic cases In the last ten years I have employed a definite technic in a simple mastoid With an uncomplicated case, in which no vital structures are exposed, such as the dura, the sinuses or the labyrinth, the wound is cleaned out completely—I am not particularly enthusiastic about polishing the bone by means of a burr, but after the cavity is clean, the wound is packed loosely with a strip of gauze, a rubber tube is inserted in the opening of the antrum and the drainage gauze and tube allowed to come out through a stab wound The main incision is primarily closed. Just as soon as the discharge from the external auditory canal stops the drain material is removed and the cavity of the mastoid allowed to close just as any other I am now speaking of uncomplicated cases, and I mean by that that the discharge and the hearing correspondingly improved Just as long as there is discharge from the auditory canal I allow drainage from the wound In the radical mastoid the cavity is never packed primarily, and only when that little space between the facial spur and the upper portion of the tegmen begins to narrow, then we sometimes pack lightly We do not now make use of any skin grafting

DR WENDELL C PHILLIPS, New York I am very often asked the question by students and other observers what I consider should be the extent of the mastoid operation, and my invariable reply is that there is no limit to the operation, except the limitations of the disease, and that ought to be the rule that is followed by every operator Unfortunately, the disease so frequently does extend even beyond the confines of the temporal bone that men of limited experience do not completely excavate the diseased bone and thus bring about conditions that require a second mastoid operation I have no doubt that Dr Kerrison meant to imply that the extent of the operation is the limitation of the diseased area I remove the entire area of diseased bone and all granulations excepting at one point, and that is in the tympanic portion of the mastoid antrum I do think it is dangerous to do much curetting around here on account of the danger of disturbing the incus Experience has proved that Nature will attend to the granulations in this area I wish also to say that one of the points where men fail in the simple mastoid operation to get the diseased bone removed is in the region of the zygoma In most of my operations I find it necessary to cut away the cortex over the zygoma as far forward as the middle line of the external auditory canal in order to get to the point of limitation of the disease Regarding the healing process, I quite agree with Dr Canfield that it is not so much the method we follow in the after-treatment as the method we follow in the operation itself You can close the wound largely and drain it with a strip of gauze, and then you will have a sinus that will remain for six or eight weeks before it will heal, or you can leave it wide open and pack it

I must take issue with Dr Welty if I understood him correctly when he inferred that all postoperative temperatures are due to the fact that all the diseased bone has not been removed We know that we have postoperative temperature where the bone has been completely removed, and there are various reasons for it I wish to emphasize one more point in connection with the healing process We all have delayed cases, in which the granulations do not come toward the center, where secretion persists, where there are flabby granulations, especially when an extensive operation has been done Under these circumstances we must look elsewhere for the cause and we all know that there are underlying dyscrasias which may account for it. Here it is wise to call in the family physician and get him to examine the urine, the intestinal organs, and find out if there is not something wrong with the general physical condition of the patient, and it is marvelous what results we get and how rapidly they improve when these conditions are corrected Sometimes as simple a remedy as bicarbonate of soda will have a marvelous effect on the healing process

Dr Philip D Kerrison, New York Dr Beck's reference to bacteria is important—a point I did not take up My paper was intended simply to give certain rational grounds for making a better attempt to utilize the soft parts than has been done in the past My own experience is that this can be done with perfect safety, and with a quicker and a better cosmetic result The soft parts play a more prominent part in the process of repai than aural surgeons generally have considered to be the fact

RENAL FUNCTION IN NEPHRITIS *

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In the last few years a vast amount has been written on the subject of renal function and the various methods of its estimation Reviews of the literature have appeared frequently

The present paper is the report of a clinical study of renal function, involving 150 determinations by one of the newer methods — by an index of urea excretion which has been derived from Ambard's laws[1] by F C McLean[2]

Ambard found that

1 When the concentration of the urea in the urine is constant, the rate of excretion varies directly as the square of the concentration of urea in the blood This law is expressed

$$\frac{(\text{Urea in blood})^2}{\text{Rate of excretion}} = \text{Constant}$$

2 When the concentration of urea in the blood is the same, the rate of excretion varies inversely as the square root of the concentration in the urine

$$\frac{\text{Rate of excretion I}}{\text{Rate of excretion II}} = \frac{\sqrt{\text{Concentration II}}}{\sqrt{\text{Concentration I}}}$$

$$\text{or Rate I } \sqrt{\text{Concentration I}} = \text{Rate II } \sqrt{\text{Concentration II}}$$

Introducing this factor into the first law we have

$$\frac{\text{Urea in blood}}{\sqrt{\text{Rate of excretion } \sqrt{\text{Concentration in urine}}}} = \text{Constant}$$

3 Other factors remaining constant, the rate of excretion varies directly with the weight of the individual

$$\frac{\text{Rate}}{\text{Weight}} = \text{Constant}$$

Combining this with the previous formula, we have

$$\frac{\text{Concentration of urea in blood}}{\sqrt{\frac{\text{Rate}}{\text{Weight}} \sqrt{\text{Concentration in urine}}}} = \text{Constant}$$

This formula expresses all of Ambard's laws in the simplest form In order to standardize the formula for use in human subjects, Ambard expresses it as follows

$$\frac{\text{Ur}}{\sqrt{\text{D} \times \frac{70}{\text{Wt}} \sqrt{\frac{\text{C}}{25}}}} = \text{Constant (k)}$$

Ur = Grams of urea per liter of blood
D = Grams of urea excreted per twenty four hours
Wt = Weight of individual in kilograms
C = Grams of urea per liter of urine

This formula is known as Ambard's coefficient, and the value of K usually found in the normal human subject is 0 08 (McLean) The introduction of a standard weight of 70 kg, a standard concentration of 25 gm per liter of urine and the expression of excretion as the rate per twenty-four hours are purely arbitrary, and do not affect the general relationship between the variable factors When these arbitrary factors are kept constant, they, in conjunction with the constant relationship between the four variable factors, tend to keep K constant, and the actual numerical value of K is determined by these arbitrary additions to the formula

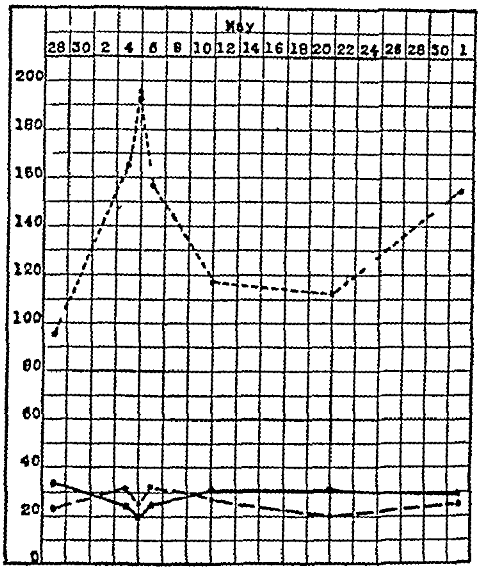

Chart 1 —Normal solid line milligrams of urea per hundred c c of blood, broken line, grams of urea excreted per twenty four hours dotted line index of urea excretion This chart shows the variations as found by McLean in a healthy adult

Index of Urea Excretion —To obviate the necessity of an arbitrary scale for the interpretation of Ambard's coefficient, McLean[2] has adapted a formula from Ambard's laws, based on a scale of 100 so that the rate of urea excretion is given in per cent of the normal, an index of 100 corresponding to a value of 0 08 for Ambard's coefficient

The derivation of the index is as follows

$$\text{Index} = \frac{\text{Rate of excretion}}{\text{Standard normal rate}} \times 100$$

From Ambard's laws

$$1 \quad \text{K} = \frac{\text{Ur}}{\sqrt{\text{Rate}}} \qquad \text{Rate} = \left[\frac{\text{Ur}}{0\ 08}\right]^2$$

$$2 \quad 0\,08 = \frac{\text{Ur}}{\sqrt{\text{Normal rate}}} \qquad \text{Normal rate} = \left[\frac{\text{Ur}}{0\ 08}\right]^2$$

$$3 \quad \frac{\text{Rate}}{\text{Normal rate}} = \frac{\left[\frac{\text{Ur}}{\text{K}}\right]^2}{\left[\frac{\text{Ur}}{0\ 08}\right]^2} = \left[\frac{0\ 08}{\text{K}}\right]^2$$

$$4 \quad \text{Index} = 100 \times \left[\frac{0\ 08}{\text{K}}\right]^2 = \left[\frac{0\ 08}{\text{K}}\right]^2$$

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* Because of lack of space this article is abbreviated in The Journal The complete article appears in the author s reprints A copy of the latter will be sent by the author on receipt of a stamped addressed envelope

[1] Ambard L Rapports entre le taux de l'urée dans le sang et l'elimination de l uree dans l'urine, Compt rend Soc de biol, Nov 19 1910, p 411 Rapports de la quantite et du taux de l uree dans l urine, la concentration de l urée du sang etant constant ibid Dec 3 1910 p 506 Physiologie normale et pathologie des reins Paris 1914

[2] McLean and Selling Urea and Total Non Protein Nitrogen in Normal Human Blood Relation of Their Concentration to Rate of Elimination Jour Biol Chem, 1914, **19**, 31 McLean, F C The Numerical Laws Governing the Rate of Excretion of Urea and Chlorides in Man, Jour Exper Med, 1915, **22**, 212 366 Clinical Determination of Renal Function by an Index of Urea Excretion The Journal A M A Feb 5 1916 p 415

Substituting for K (Ambard's coefficient) and simplifying,

$$\text{Index} = \frac{\text{Gm. urea per 24 hrs.} \sqrt{\text{Gm. urea per liter urine} \times 8.96}}{\text{Wt. in kg.} \times (\text{Gm. urea per liter of blood})^2}$$

When K = 0.08 the standard normal Index = 100.

Methods.—Specimens. The methods recommended by McLean[2] have been used with slight modification. The observations may be made at any time, since the application of the laws is independent of the nitrogen intake. However, it has been considered preferable as a routine to make the observations in the forenoon, no food or water being taken during the period.

The patient is given 300 c.c. of water to drink. One half hour later the bladder is emptied, by catheter if necessary, and the time noted. Then after one or two hours the bladder is again emptied, the time carefully noted, and the amount of urine measured to within 1 c.c. The shorter period is used when the patient is secreting a fairly large amount of urine. At about the middle of the period, 10 c.c. of blood are drawn from a vein into a dry tube containing about 1 gram of potassium oxalate with which it is mixed to prevent clotting.

Analysis. The urease method introduced by Marshall[3] has been used. This depends on the breaking down of urea into ammonia and carbon dioxid by the specific enzyme found in soy bean and the subsequent determination of the ammonia. The permanent preparation of urease described by Van Slyke and Cullen[4] has been used throughout. Three analyses were made in each case: blood urea, urine urea and urine ammonia. The urine ammonia is determined in order to correct the urea figure for preformed ammonia, which is also determined in the urea method.

Calculation of the Index. From the results of the determinations the following calculations are made:

1. Grams of urea excreted per 24 hours = D
2. Grams of urea per liter of urine = C
3. Grams of urea per liter of blood = Ur

These values in the body weight in kilos are substituted in the formula for the index as given above, and the value of the index calculated by aid of a slide rule. With the modified slide rule described by McLean it may easily be calculated in fifteen seconds.

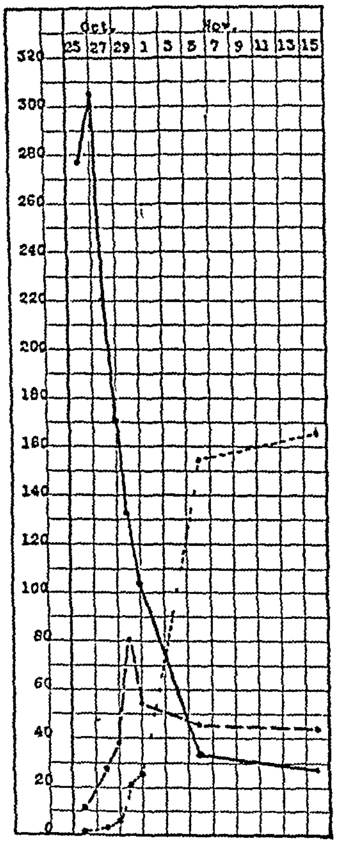

Chart 2.—Uremia: solid line, milligrams of urea per hundred c.c. of blood; broken line, grams of urea excreted per twenty-four hours; dotted line, index of urea excretion.

Nitrogen Intake.—It has been clearly demonstrated[2] that while the nitrogen intake has a direct and marked influence on the concentration of blood urea, it has no effect on the index of urea excretion.

The character of the diet in this series has been included in the tables after each observation. The diet noted as "nephritic" is one which is low in protein and sodium chlorid.

UREA EXCRETION

Urea Excretion in Chronic Nephritis With Hypertension.—Series 1 contains seventy-seven observations made in cases of chronic nephritis with hypertension. It is to be noted that the blood urea ranges from 0.2 to 3.98 gm. per liter. In 62 per cent. of the patients the blood urea is within normal limits (from 0.2 to 0.5 gm.), yet every observation gave an index of urea excretion below normal. The excretion of phenolsulphonephthalein was low or delayed in nearly every instance in which the test was made.

This series[2] again demonstrates the fact that except in extreme conditions the blood urea figure alone does not show the degree of renal impairment; in fact, it is deceptive, as in over 60 per cent. of the cases in Series 1 the blood urea figure is within normal limits. In spite of this large percentage of patients with normal concentration of blood urea, we know that every one in the series had a definite and permanent impairment of renal function. It is only in the individuals with marked renal impairment, who have a low index of urea excretion and a low phenolsulphonephthalein output, that the blood urea figure rises above the upper limit of normal.

It is significant that 100 per cent. of the patients with chronic nephritis and hypertension had an index of urea excretion below normal.

Urea Excretion in Chronic Nephritis With Normal Blood Pressure.—Series 2 contains eighteen observations made on patients with chronic nephritis and normal blood pressure. Of the eight with normal concentration of blood urea, two had a normal index of urea excretion (above 80), four had a slightly lowered (from 50 to 80) and two had an index below 50, which indicates a considerable impairment of renal function. All cases with a blood urea concentration above normal had a low index of urea excretion, that is, one indicating a marked degree of renal impairment. This series is in sharp contrast to the one of chronic nephritis with hypertension in which all cases, regardless of the blood urea figure, have an index of urea excretion below normal. The individuals in this series with normal blood urea tend to have a normal or moderately reduced index of urea excretion, whereas the ones with blood urea concentration above normal all have a low index of urea excretion.

Urea Excretion in a Series of Miscellaneous Cases.—Series 3 contains nineteen observations made on eighteen miscellaneous hospital patients. The cases of plumbism, pernicious anemia and diabetes mellitus had an index of urea excretion below 50. One case of acute plumbism shows the marked reduction of blood urea, from 1.3 to 0.74 gm. per liter, which occurred during the course of twenty-three days of treatment. A corresponding rise (from 1 to 12) is noted in the index of urea excretion.

Urea Excretion in Uremia.—Chart 2 gives in detail a case of uremia in which the patient recovered.

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[3] Marshall, E. K., Jr.: A Rapid Clinical Method for the Estimation of Urea in Urine, Jour. Biol. Chem., 1913, **14**, 283. A New Method for the Determination of Urea in Blood, ibid., 1913, **15**, 487. The Determination of Urea in Urine, ibid., 1913, **15**, 495.

[4] Van Slyke, D. D., and Cullen, G. E.: A Permanent Preparation of Urease and Its Use in the Determination of Urea, Jour. Biol. Chem., 1914, **19**, 211; [illegible]d, The Journal A. M. A., May 16, 1914, p. 1558.

H S, man, aged 32, whose case was diagnosed as chronic gonorrhea, multiple strictures, retention of urine, uremia, gluteal abscesses (colon), and colon bacillus septicemia, came under observation Oct 25, 1915, at which time the pulse was 120 temperature 101 F and respirations 40 per minute He was cyanotic and irrational and had retention of urine The retention was relieved, but the patient continued to grow worse during the day, and 500 c c of blood were withdrawn by venesection The following day (October 26) the patient's condition was apparently the same, although the blood urea concentration was higher October 27 there was a definite improvement in the general condition, and the blood urea had fallen to 2 21 gm per liter From this time on the blood urea continued to fall The urea excretion was at no time low, being at the rate of 11 gm per twenty-four hours, when the patient came under observation It rose to 80 gm, October 29, and then gradually returned to normal The blood urea concentration diminished rapidly after October 26, and the index of urea excretion rose to normal There was a much greater improvement in the general condition of the patient during the time the index of urea excretion increased from 0 5 to 26 than in the time it changed from 26 to 166 The amount of urine voided was at all times large, varying from 1,650 to 4,600 c c in twenty-four hours

UREA INDEX AND PHENOLSULPHONEPHTHALEIN

Although the question as to the agreement of the phenolsulphonephthalein test and the index of urea excretion does not come within the scope of this paper, it is interesting to note that in general the two tests give parallel results There are striking instances, however, in which the tests do not agree A case illustrating this is seen in Chart 3 Clinically this is a case of chronic diffuse nephritis with hypertension The presence of marked impairment of renal function was demonstrated by the presence of a high blood urea concentration and a low index of urea excretion, and the fact that improvement under prolonged hospital treatment was slight and transitory The phenolsulphonephthalein excretion for two hours was 55 per cent While 55 per cent may be considered a little low it does not indicate the degree of renal impairment that actually existed

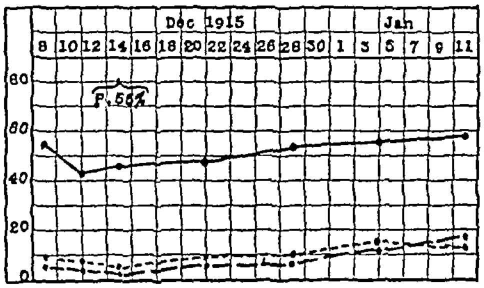

Chart 3—Chronic diffuse nephritis solid line milligrams of urea per hundred c c of blood broken line grams of urea excreted per twenty four hours dotted line index of urea excretion, P percentage of phenolsulphonephthalein excreted in two hours

CONCLUSIONS

1 The index of urea excretion gives much more information as to the degree of renal impairment and the prognosis, than does the blood urea determination *alone*

2 All cases of chronic nephritis with hypertension here studied have impairment of renal function sufficient to alter definitely the relation that normally exists between the urea concentration of the blood and the rate of urea excretion, that is, have a low index of urea excretion

3 The majority of these cases of chronic nephritis with hypertension have a blood urea concentration within normal limits (from 0 2 to 0 5 gm per liter)

4 Chronic nephritis with normal blood pressure may or may not have sufficient renal impairment to alter the relation which normally exists between the blood urea concentration and the urea excretion, that is, it may have a normal or a low index of urea excretion

5 In general the phenolsulphonephthalein test parallels the index of urea excretion, but there are marked exceptions to this rule in which the phenolsulphonephthalein test apparently gives an erroneous idea of the degree of renal impairment

40 East Colorado Street

OBSERVATIONS ON IMMUNITY OF MONKEYS TO EXPERIMENTAL POLIOMYELITIS *

E C ROSENOW, M D
ROCHESTER, MINN

E B TOWNE, M D
BOSTON

AND

G W WHEELER, M D
NEW YORK

It is a generally accepted fact that a monkey, after recovery from an attack of experimental poliomyelitis, is immune to subsequent injection with virulent virus It is a question whether an inoculation which does not cause paralysis confers immunity Romer believes that immunity follows unsuccessful intracerebral injection in some cases But there are in the literature many instances in which experimental poliomyelitis has been produced in monkeys which had shown no evidence of infection from a previous inoculation

We wish to record an experiment which appears to indicate that immunity was conferred on three monkeys by inoculations which were not followed by obvious evidence of infection One of the apparently immune animals had previously received an intracerebral injection of a culture of pleomorphic streptococci, the second had received emulsion of central nervous system of animals paralyzed by cultures of streptococci, and the third had received virus in the usual way

Material used for test inoculation—A virus which had been passed successively through four monkeys was employed A 5 per cent emulsion in physiologic sodium chlorid solution of the brain and cord of the fourth animal (Monkey 26) was made immediately after necropsy, November 3 This was ground thoroughly with sterile quartz sand, and shaken for twenty minutes Eight rhesus monkeys were injected in the left frontal lobe with this emulsion Two of these were controls, five had received previous inoculations with virus, filtrate of virus, or culture, and the eighth had received a mixture of the test virus and blood serum from monkeys suspected of being immune Seven of the monkeys which were of approximately the same weight were given 1 c c of the test virus, and the eighth, which was a large, old animal, was given 3 c c

The accompanying table records briefly the results of this experiment For details of the source of material used in the previous injections, reference should be made to the protocols

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* From the Mayo Foundation

PROTOCOLS

EXPERIMENT 1—*Control*—Monkey 33 *Macacus rhesus,* 2 6 kg

Nov 3, 1916 Etherized, 1 c c of Virus 751^5 injected into left frontal lobe

November 10 (seventh day) Tremor of arms and legs, rapidly followed by flaccid paralysis of left arm and marked weakness of muscles of the right arm back and legs

November 11 Prostrate Killed with ether Cyst size of pea filled with clear fluid, was found at point of inoculation Microscopic section of brain and cord showed marked typical lesions of experimental poliomyelitis

EXPERIMENT 2—*Control*—Monkey 34, *M rhesus* 7 3 kg

November 3 Three c c of Virus 751^5 injected into the left frontal lobe Immediately after injection there was spastic weakness of the right arm

November 7 Several convulsions Right arm remained almost useless and there was slight weakness of right face and leg Acted sick and ate little

November 10 Better took food well and was active the right arm still weak

November 13 (tenth day) Irritable Coarse tremor of left arm

November 15 General tremor Legs weak could scarcely walk Handling legs appeared to cause pain Knee kicks exaggerated

November 16 Legs flaccid reflexes abolished Left arm tremulous and weak back muscles weak Difficulty in swallowing Killed with ether A cyst about the size of an almond filled with clear deep yellow fluid (old blood) was found at point of injection Microscopic sections of brain and cord showed typical lesions of experimental poliomyelitis

EXPERIMENT 3—*Attempt to destroy activity of virus by mixture with serum of monkeys thought to be immune*—Monkey 37, *M rhesus* 2 8 kg

November 3 Virus serum mixture made as follows Blood was removed from the internal saphenous vein of Monkeys 19 and 21 (which see) previous to their inoculation with the test virus The serums were mixed so that 1 c c contained approximately three parts from Monkey 19 and seven parts from Monkey 21 One c c of the serum mixture was added to 1 c c of the test virus The mixture was filtered through paper kept at a temperature of 35 C for two and one half hours and then in the ice box for fifteen hours

November 4 Etherized Two c c of virus serum mixture (containing 1 c c of Virus 751^5) injected into left frontal lobe

November 19 (fifteenth day) Very excitable Head inclined to the right constant coarse tremor of right neck muscles

November 20 Tremor has extended to muscles of right arm Knee jerks brisk

November 21 Flaccid paralysis of legs back and right arm Left arm weak and tremulous Killed with ether Small cyst containing clear fluid at the point of inoculation Microscopic sections showed characteristic lesions of experimental poliomyelitis

EXPERIMENT 4—*A monkey previously injected intravenously with culture from pus about the teeth of a monkey which did not have pathologic lesions of poliomyelitis was not immune to test virus*—Monkey 21 *M rhesus* 2 5 kg

Previous Inoculation Sept 16 1916—Injected intravenously with 4 c c of a suspension in physiologic sodium chlorid solution of the centrifugal growth from 60 c c of ascites dextrose broth culture of pus around the teeth of Monkey 18, Case 756 This organism appeared in smears from broth as a somewhat elongated diplococcus, occasionally in short chains and on blood agar plate as small dry green producing colonies (Monkey 18 was a domesticated monkey with marked pyorrhea alveolaris, he became spontaneously paralyzed in the animal room When muscle power began to come back he was killed with ether Microscopic sections did not show lesions of poliomyelitis)

September 17 Sick and irritable

September 21 Appeared well Etherized Injected into frontal lobe 1 3 c c of physiologic sodium chlorid solution containing the growth from 20 c c of ascites dextrose broth culture 756 3 (Monkey 18 teeth) This was a second subculture of the culture injected September 16

November 2 Had remained well Blood for serum removed from saphenous vein (compare Monkey 37)

November 3 Etherized One c c. of Virus 751^5 injected into left frontal lobe

November 19 (sixteenth day) Irritable and tremulous, with weakness of legs

November 20 Flaccid paralysis of both legs Wrist drop on right

November 26 Right arm and back muscles gone Left arm weak and ataxic but could be used to take food Good appetite

December 5 Improving able to sit up Arms were stronger but markedly ataxic Legs could be moved a little

December 15 Got about quite well Legs paretic and began to show contractures

EXPERIMENT 5—*A monkey injected intracerebrally with filtrate of brain and cord of a monkey which did not have pathologic lesions of poliomyelitis was not immune to test virus*—Monkey 24 *M rhesus* 2 3 kg

Previous Inoculation October 5—Etherized One and five tenths c c of Berkefeld N filtrate of Virus 737^2 (glycerinated brain and cord of Monkey 16) injected into left frontal lobe (Monkey 16 was inoculated with a filtrate of mixed human and monkey virus and developed muscular weakness but microscopic sections did not give the picture of experimental poliomyelitis)

November 3 Had remained well Etherized One c c of Virus 751^5 injected into left frontal lobe

November 10 (seventh day) Irritable, with rapid tremor of neck and shoulder muscles Internal squint apparently due to weakness of right sixth nerve General muscular weakness

November 13 Markedly ataxic Left arm awkward

November 17 Less tremor Both arms weak especially the right which showed complete wrist drop Right leg tired quickly No knee jerk on right Strabismus less marked Photophobia

November 26 Improving Shaky and weak took food well

December 15 Very active showed only some residual weakness of right arm slight internal strabismus and photophobia

EXPERIMENT 6—*Example of apparent immunity conferred by inoculation with filtrate and virus seven weeks previously without evidence of infection*—Monkey 17 *M rhesus* 2 5 kg

Previous Inoculation September 13—Etherized Injected into frontal lobe 1 5 c c of Virus 737 (compare Monkey 24) which had been passed through a dense porcelain filter

September 19 Had remained well Etherized Seventy five hundredths c c of fresh human Virus 729 injected into frontal lobe

November 3 Had remained well Etherized One c c of Virus 751^5 injected into left frontal lobe

RESULTS OF TEST INJECTIONS OF A VIRULENT VIRUS

	1 Monkey 33 M rhesus 2 6 kg (Control)	2 Monkey 34 M rhesus 7 3 kg (Control)	3 Monkey 37 M. rhesus 2 8 kg	4 Monkey 21 M rhesus 2 3 kg	5 Monkey 24 M rhesus 2 3 kg	6 Monkey 17 M rhesus 2 5 kg	7 Monkey 14 M rhesus 2 1 kg	8 Monkey 19 M rhesus 2 8 kg
Previous injection				Sept 16 and 21 growth from 60 c c and 20 c c Broth Cult. 756 (Monkey 18 teeth) intravenously (not polio)	Oct 5 1 5 c c Berk N filt Virus 737 (Monkey 16) intracerebrally (not poliomyelitis)	Sept 13 1 5 c c porcelain filt Virus 737 intrac Sept 19 0 75 c c Virus 729 intracer	Sept 11 and 20 intrac injec filt and Virus 714^5 (Monkeys 10 and 12 paralyzed with cultures)	Sept 16 1 5 c c Cultures 707 2 intracerebrally
Result of previous injection				Sept 17 sick well thereafter	Remained well	Remained well	Sept 18 Rt arm awkward, well thereafter	Sept 16 18 sick well thereafter
Virus 751^5 (Monkey 26)	Nov 3 1 c c intracerebrally	Nov 3 3 c c intracerebrally	Nov 4 1 c c Virus + 1 c c. serum Monkeys 19 and 21 (incubated 2½ hrs) intracerebrally	Nov 3 1 c c intracerebrally	Nov 3 1 c c intracerebrally	Nov 3 1 c c intracerebrally	Nov 3 1 c c intracerebrally	Nov 3 1 c c intracerebrally
Result	Paralysis 7th day killed with ether 8th day typical lesions	Tremor 10th day paralysis 13th day killed with ether 14th day typical lesions	Excitement and tremor 15th day paralysis 17th day killed with ether 17th day typical lesions	Tremor 16th day paraly 17th day prostrate 23d day improved 32d day weak legs with contractures 45th day	Ataxia squint and paresis 7th day paralysis 14th day improved 23rd day weak arm and squint 45th day	No symptoms well on 45th day	No symptoms well on 45th day	No symptoms well on 45th day

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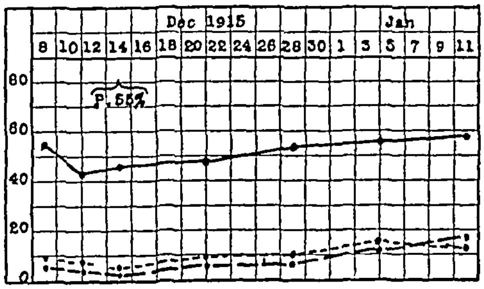

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December 15 Got about quite well Legs paretic and began to show contractures

Experiment 5.—*A monkey injected intracerebrally with filtrate of brain and cord of a monkey which did not have pathologic lesions of poliomyelitis was not immune to test virus*—Monkey 24 *M rhesus* 2 3 kg

Previous Inoculation October 5—Etherized One and five tenths c c of Berkefeld N filtrate of Virus 737^2 (glycerinated brain and cord of Monkey 16) injected into left frontal lobe (Monkey 16 was inoculated with a filtrate of mixed human and monkey virus and developed muscular weakness, but microscopic sections did not give the picture of experimental poliomyelitis)

November 3 Had remained well Etherized One c c of Virus 751^5 injected into left frontal lobe

November 10 (seventh day) Irritable, with rapid tremor of neck and shoulder muscles Internal squint, apparently due to weakness of right sixth nerve General muscular weakness

November 13 Markedly ataxic Left arm awkward

November 17 Less tremor Both arms weak especially the right which showed complete wrist drop Right leg tired quickly No knee jerk on right Strabismus less marked Photophobia

November 26 Improving Shaky and weak took food well

December 15 Very active showed only some residual weakness of right arm, slight internal strabismus and photophobia

Experiment 6.—*Example of apparent immunity conferred by inoculation with filtrate and virus seven weeks previously without evidence of infection*—Monkey 17 *M rhesus* 2 5 kg

Previous Inoculation September 13—Etherized Injected into frontal lobe 1 5 c c of Virus 737 (compare Monkey 24) which had been passed through a dense porcelain filter

September 19 Had remained well Etherized Seventy five hundredths c c of fresh human *Virus 729 injected into frontal lobe*

November 3 Had remained well Etherized One c c of Virus 751^5 injected into left frontal lobe

RESULTS OF TEST INJECTIONS OF A VIRULENT VIRUS

	1 Monkey 33 M rhesus 2 6 kg (Control)	2 Monkey 34 M rhesus 7 3 kg (Control)	3 Monkey 37 M rhesus 2 8 kg	4 Monkey 21 M rhesus 2 3 kg	5 Monkey 24 M rhesus 2 3 kg	6 Monkey 17 M rhesus 2 5 kg	7 Monkey 14 M rhesus 2 1 kg	8 *Monkey 19* M rhesus 2 8 kg
Previous injection				Sept 16 and *21 growth* from 60 c c and 20 c c Broth Cult. 756 (Monkey 18 teeth) intravenously (not polio)	Oct 5 1 5 c c *Berk N filt* Virus 737^2 (Monkey 16) intracerebrally (not poliomyelitis)	Sept 13, 1 5 c c *porcelain* filt Virus 737 intrac Sept 19 0 75 c c Virus 729 intracer	Sept 11 *and 20* intrac injec filt and Virus 714^5 (*Monkeys 10* and 12 paralyzed with cultures)	Sept 16 1 5 c c Culture 707 2 intracerebrally
Result of previous injection				Sept 17 sick well thereafter	Remained well	Remained well	Sept 18 Rt arm awkward, well thereafter	Sept 16 18 sick well thereafter
Virus 751^5 (Monkey 26)	Nov 3 1 c c intracerebrally	Nov 3 3 c c intracerebrally	Nov 4 1 c c Virus + 1 c c serum Monkeys 19 and 21 (incubated 2½ hrs) intracerebrally	Nov 3 1 c c intracerebrally	Nov 3 1 c c intracerebrally	Nov 3 1 c c intracerebrally	Nov 3 1 c c intracerebrally	Nov 3 1 c c *intracerebrally*
Result	Paralysis 7th day killed with ether 8th day typical lesions	Tremor 10th day paralysis 13th day killed with ether 14th day typical lesions	Excitement and tremor 15th day paralysis 17th day killed with ether 17th day typical *lesions*	Tremor 16th day paraly 17th day prostrate 23d day improved 32d day weak legs with contractures 45th day	Ataxia squint and paresis 7th day paralysis 14th day improved 23rd day weak arm and squint 45th day	No symptoms well on 45th day	No symptoms well on 45th day	No symptoms well on 45th day

H. S., man, aged 32, whose case was diagnosed as chronic gonorrhea, multiple strictures, retention of urine, uremia, gluteal abscesses (colon), and colon bacillus septicemia, came under observation Oct. 25, 1915, at which time the pulse was 120, temperature 101 F. and respirations 40 per minute. He was cyanotic and irrational and had retention of urine. The retention was relieved, but the patient continued to grow worse during the day, and 500 c.c. of blood were withdrawn by venesection. The following day (October 26) the patient's condition was apparently the same, although the blood urea concentration was higher. October 27 there was a definite improvement in the general condition, and the blood urea had fallen to 2.21 gm. per liter. From this time on the blood urea continued to fall. The urea excretion was at no time low, being at the rate of 11 gm. per twenty-four hours, when the patient came under observation. It rose to 80 gm., October 29, and then gradually returned to normal. The blood urea concentration diminished rapidly after October 26, and the index of urea excretion rose to normal. There was a much greater improvement in the general condition of the patient during the time the index of urea excretion increased from 0.5 to 26 than in the time it changed from 26 to 166. The amount of urine voided was at all times large, varying from 1,650 to 4,600 c.c. in twenty-four hours.

UREA INDEX AND PHENOLSULPHONEPHTHALEIN

Although the question as to the agreement of the phenolsulphonephthalein test and the index of urea excretion does not come within the scope of this paper, it is interesting to note that in general the two tests give parallel results. There are striking instances, however, in which the tests do not agree. A case illustrating this is seen in Chart 3. Clinically this is a case of chronic diffuse nephritis with hypertension. The presence of marked impairment of renal function was demonstrated by the presence of a high blood urea concentration and a low index of urea excretion, and the fact that improvement under prolonged hospital treatment was slight and transitory. The phenolsulphonephthalein excretion for two hours was 55 per cent. While 55 per cent. may be considered a little low, it does not indicate the degree of renal impairment that actually existed.

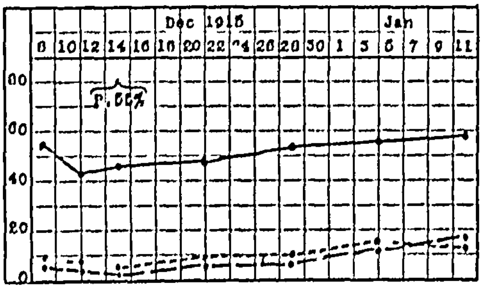

Chart 3.—Chronic diffuse nephritis: solid line, milligrams of urea per hundred c.c. of blood; broken line, grams of urea excreted per twenty-four hours; dotted line, index of urea excretion. P, percentage of phenolsulphonephthalein excreted in two hours.

CONCLUSIONS

1. The index of urea excretion gives much more information as to the degree of renal impairment and the prognosis, than does the blood urea determination alone.

2. All cases of chronic nephritis with hypertension here studied have impairment of renal function sufficient to alter definitely the relation that normally exists between the urea concentration of the blood and the rate of urea excretion, that is, have a low index of urea excretion.

3. The majority of these cases of chronic nephritis with hypertension have a blood urea concentration within normal limits (from 0.2 to 0.5 gm. per liter).

4. Chronic nephritis with normal blood pressure may or may not have sufficient renal impairment to alter the relation which normally exists between the blood urea concentration and the urea excretion, that is, it may have a normal or a low index of urea excretion.

5. In general the phenolsulphonephthalein test parallels the index of urea excretion, but there are marked exceptions to this rule in which the phenolsulphonephthalein test apparently gives an erroneous idea of the degree of renal impairment.

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OBSERVATIONS ON IMMUNITY OF MONKEYS TO EXPERIMENTAL POLIOMYELITIS*

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It is a generally accepted fact that a monkey, after recovery from an attack of experimental poliomyelitis, is immune to subsequent injection with virulent virus. It is a question whether an inoculation which does not cause paralysis confers immunity. Römer believes that immunity follows unsuccessful intracerebral injection in some cases. But there are in the literature many instances in which experimental poliomyelitis has been produced in monkeys which had shown no evidence of infection from a previous inoculation.

We wish to record an experiment which appears to indicate that immunity was conferred on three monkeys by inoculations which were not followed by obvious evidence of infection. One of the apparently immune animals had previously received an intracerebral injection of a culture of pleomorphic streptococci, the second had received emulsion of central nervous system of animals paralyzed by cultures of streptococci, and the third had received virus in the usual way.

Material used for test inoculation.—A virus which had been passed successively through four monkeys was employed. A 5 per cent. emulsion in physiologic sodium chlorid solution of the brain and cord of the fourth animal (Monkey 26) was made immediately after necropsy, November 3. This was ground thoroughly with sterile quartz sand, and shaken for twenty minutes. Eight rhesus monkeys were injected in the left frontal lobe with this emulsion. Two of these were controls, five had received previous inoculations with virus, filtrate of virus, or culture, and the eighth had received a mixture of the test virus and blood serum from monkeys suspected of being immune. Seven of the monkeys which were of approximately the same weight were given 1 c.c. of the test virus, and the eighth, which was a large, old animal, was given 3 c.c.

The accompanying table records briefly the results of this experiment. For details of the source of material used in the previous injections, reference should be made to the protocols.

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* From the Mayo Foundation.

PROTOCOLS

EXPERIMENT 1.—*Control*.—Monkey 23. *Macacus rhesus*, 2.6 kg.

Nov. [illegible], 1916. Etherized. 1 c.c. of Virus 721 injected into left frontal lobe.

November 10 (seventh day). Tremor of arms and legs, rapidly followed by flaccid paralysis of left arm and marked weakness of muscles of the right arm, back and legs.

November 11. Prostrate. Killed with ether. Cyst size of pea filled with clear fluid, was found at point of inoculation. Microscopic section of brain and cord showed marked typical lesions of experimental poliomyelitis.

EXPERIMENT 2.—*Control*.—Monkey 24. *M. rhesus*, [illegible] kg.

November [illegible]. Three c.c. of Virus 721 injected into the left frontal lobe. Immediately after injection there was spastic weakness of the right arm.

November 7. Several convulsions. Right arm remained almost useless and there was slight weakness of right face and leg. Acted sick and irritable.

November 11. Better; ate food well and was active; the right arm still weak.

November 1[illegible] ([illegible] day). Irritable. Coarse tremor of left arm.

November 1[illegible]. General tremor. Legs weak; could scarcely walk. Handling legs appeared to cause pain. Knee jerks exaggerated.

November 16. Legs flaccid; reflexes abolished. Left arm tremulous and weak; back muscles weak. Difficulty in swallowing. Killed with ether. A cyst about the size of an almond filled with clear, dark yellow fluid (old blood) was found at point of injection. Microscopic sections of brain and cord showed typical lesions of experimental poliomyelitis.

EXPERIMENT 3.—*Attempt to neutralize virus by mixture with serum of monkeys thought to be immune*.—Monkey 27. *M. rhesus*, 2.8 kg.

November [illegible]. Virus-serum mixture made as follows: Blood was removed from the internal saphenous vein of Monkeys 19 and 21 (which see) previous to their inoculation with the test virus. The serums were mixed so that 1 c.c. contained approximately three parts from Monkey 19 and seven parts from Monkey 21. One c.c. of the serum mixture was added to 1 c.c. of the test virus. The mixture was [illegible] through paper, kept at a temperature of [illegible] C. for two and one-half hours and then in the ice box for fifteen hours.

November [illegible]. Etherized. Two c.c. of virus-serum mixture (containing 1 c.c. of Virus 721) injected into left frontal lobe.

November 19 (fifteenth day). Very excitable. Head inclined to the right; constant coarse tremor of right neck muscles.

November 20. Tremor has extended to muscles of right arm. Knee jerks brisk.

November 21. Flaccid paralysis of legs, back and right arm. Left arm weak and tremulous. Killed with ether. Small cyst containing clear fluid at the point of inoculation. Microscopic sections showed characteristic lesions of experimental poliomyelitis.

EXPERIMENT 4.—*A monkey previously injected intravenously with a streptococcus from the teeth of a monkey which did not have typical lesions of poliomyelitis was not immune to test virus*.—Monkey 21. *M. rhesus*, 2.2 kg.

Previous Inoculation, Sept. 16, 1916.—Injected intravenously with [illegible] c.c. of a suspension in physiologic sodium chlorid solution of the centrifugal growth from 60 c.c. of ascites dextrose broth culture of pus around the teeth of Monkey 18, Case [illegible]6. This organism appeared in smears from broth as a somewhat elongated diplococcus, occasionally in short chains, and on blood agar plate as small dry green-producing colonies. (Monkey 18 was a domesticated monkey with marked pyorrhea alveolaris. He became spontaneously paralyzed in the animal room. When muscle power began to come back he was killed with ether. Microscopic sections did not show lesions of poliomyelitis.)

September 17. Sick and irritable.

September 21. Appeared well. Etherized. Injected into frontal lobe 1.5 c.c. of physiologic sodium chlorid solution containing the growth from 20 c.c. of ascites dextrose broth culture [illegible]6.3 (Monkey 18, teeth). This was a second subculture of the culture injected September 16.

November 2. Had remained well. Blood for serum removed from saphenous vein (compare Monkey 27).

November [illegible]. Etherized. One c.c. of Virus 721 injected into left frontal lobe.

November 19 (sixteenth day). Irritable and tremulous, with weakness of legs.

November 20. Flaccid paralysis of both legs. Wrist drop on right.

November 26. Right arm and back muscles gone. Left arm weak and ataxic but could be used to take food. Good appetite.

December [illegible]. Improving; able to sit up. Arms were stronger but markedly ataxic. Legs could be moved a little.

December 1[illegible]. Got about quite well. Legs paretic and began to show contractures.

EXPERIMENT 5.—*A monkey injected intracerebrally with filtrate of brain and cord of a monkey which did not have typical lesions of poliomyelitis was not immune to test virus*.—Monkey 2[illegible]. *M. rhesus*, [illegible] kg.

Previous Inoculation, Oct. [illegible].—Etherized. One and one-tenth c.c. of Berkefeld N filtrate of Virus [illegible] (glycerinated brain and cord of Monkey 16) injected into left frontal lobe. (Monkey 16 was inoculated with a filtrate of mixed human and monkey virus and developed muscular weakness, but microscopic sections did not give the picture of experimental poliomyelitis.)

November [illegible]. Had remained well. Etherized. One c.c. of Virus 721 injected into left frontal lobe.

November 10 (seventh day). Irritable, with rapid tremor of neck and shoulder muscles. Internal squint apparently due to weakness of right sixth nerve. General muscular weakness.

November 1[illegible]. Markedly ataxic. Left arm awkward.

November 1[illegible]. Less tremor. Both arms weak, especially the right, which showed complete wrist drop. Right leg tired quickly. No knee jerk on right. Strabismus less marked. Photophobia.

November 26. Improving. Shaky and weak; took food well.

December 15. Very active; showed only some residual weakness of right arm, slight internal strabismus and photophobia.

EXPERIMENT 6.—*Example of apparent immunity conferred by inoculation with filtrate and virus seven weeks previously without evident infection*.—Monkey 17. *M. rhesus*, 2.5 kg.

Previous Inoculation, September 1.—Etherized. Injected into frontal lobe 1.5 c.c. of Virus [illegible] (compare Monkey 24) which had been passed through a dense porcelain filter.

September 19. Had remained well. Etherized. Seventy-three hundredths c.c. of fresh human Virus [illegible] injected into frontal lobe.

November [illegible]. Had remained well. Etherized. One c.c. of Virus 721 injected into left frontal lobe.

RESULTS OF TEST INJECTIONS OF A VIRULENT VIRUS

	1 Monkey 23 M. rhesus 2.6 kg. (Control)	2 Monkey 24 M. rhesus [illegible] kg (Control)	3 Monkey 27 M. rhesus 2.8 kg	4 Monkey 21 M. rhesus 2.2 kg	5 Monkey 2[illegible] M. rhesus 2.[illegible] kg	6 Monkey 17 M. rhesus 2.[illegible] kg	[illegible] Monkey 1[illegible] M. rhesus 2.1 kg	8 Monkey 19 M. rhesus 2.8 kg
Previous inoculation				Sept. 16 and 21 growth from 60 c.c. and 20 c.c. Broth Cult. [illegible] (Monkey 18 teeth) intravenously (no polio.)	Oct. [illegible] 1.1 c.c. Berk. N. Virus [illegible] (Monkey 16) intracerebrally (no poliomyelitis)	Sept. 1 1.5 c.c. porcelain filt. Virus [illegible] intracer.; Sept. 19 0.73 c.c. Virus [illegible] intracer.	Sept. 11 and [illegible] intravenously and Virus [illegible] (Monkeys 10 and 12 paralyzed with cultures)	Sept. 16 1 c.c. Culture [illegible] intracerebrally
Result of previous injection				Sept. 17 sick, well thereafter	Remained well	Remained well	Sept. 18 R. arm awkward, well thereafter	Sept. 16-18 sick, well thereafter
Virus 721 (Monkey [illegible])	Nov. [illegible] 1 c.c. intracerebrally	Nov. [illegible] c.c. intracerebrally	Nov. [illegible] 1 c.c. Virus + 1 c.c. serum Monkeys 19 and 21 (incubated 2½ hrs.) intracerebrally	Nov. [illegible] 1 c.c. intracerebrally	Nov. [illegible] 1 c.c. intracerebrally	Nov. [illegible] 1 c.c. intracerebrally	Nov. [illegible] 1 c.c. intracerebrally	Nov. [illegible] 1 c.c. intracerebrally
Result	Paralysis 7th day, killed with ether 8th day, typical lesions	Tremor [illegible]th day, paralysis [illegible]th day, killed with ether 1[illegible]th day, typical lesions	Excitement and tremor 15th day, paralysis 17th day, killed with ether 17th day, typical lesions	Tremor 16th day, paralysis 17th day, prostrate 2[illegible]d day, improved [illegible]d day, weak legs with contractures [illegible] day	Ataxia, squint and paresis 7th day, paralysis 1[illegible]th day, improved [illegible] day, weak arm and squint [illegible] day	No symptoms, well on [illegible] day	No symptoms, well on [illegible] day	No symptoms, well on [illegible] day

December 15 Had continued to be perfectly normal

Experiment 7—*Example of apparent immunity conferred by inoculation with virus from two monkeys which were paralyzed with virus and culture from a paralyzed rabbit* Monkey 14, *M rhesus* 2 1 kg

Previous Inoculation September 11—Etherized One and five tenths c c of a Berkefeld filtrate of fresh emulsion of brain of Monkey 19 (see below) injected into frontal lobe

September 18 Right arm used rather *awkwardly No other symptoms*

September 20 Well no weakness of right arm detected Etherized One c c of emulsion of glycerinated brain and cord of Monkeys 10 and 12 injected into frontal lobe (Monkey 10 received an intracerebral injection of an emulsion of brain of Rabbit 1017 Monkey 12[1] was twice injected intravenously with a pure culture of streptococci grown from the brain of Rabbit 1017 This was the third of a series of rabbits in which a strain of streptococcus recovered from a human poliomyelitis brain caused flaccid paralysis Both monkeys came down with flaccid paralysis and microscopic sections showed marked cord lesions, without, however the perivascular infiltration which is considered typical of experimental poliomyelitis in monkeys)

November 3 Had remained well Etherized One c c of Virus 751[3] injected into left frontal lobe

November 17 No symptoms

December 15 Had remained well

Experiment 8—*Example of apparent immunity conferred by intracerebral injection of a culture of streptococci isolated from a human cord*—Monkey 19 *M rhesus* 2 8 kg

Previous Inoculation September 16—Etherized One and five tenths c c of suspension of Culture 707 2 injected into frontal lobe (This strain came from a single colony of pleomorphic streptococci 2 cm from the top of a four day ascites dextrose agar shake culture of an emulsion of fresh human poliomyelitis spinal cord This colony was subcultured in tubes and bottles of ascites fluid plus sterile rabbit kidney and ascites broth plus sterile kidney September 16 these subcultures had been growing twenty three days and smears showed an extremely pleomorphic organism lanceolate diplococci, round cocci in short chains, flat sided meningococcus like diplococci and very small globoid chains Chains could be found in which each of these types were present On aerobic blood agar plate these cultures grew pure as fine dry green producing colonies)

September 17 Sick since injection quiet would not eat No muscular weakness

September 18 Better began to eat Arms and legs strong, reflexes normal

October 2 Had remained well

November 2 Had remained well Blood removed from saphenous vein

November 3 Etherized One c c of Virus 751 injected into left frontal lobe

December 15 Daily observations had shown no abnormality

COMMENT

Three unused and five used monkeys were injected with a monkey virus The test virus had been carried through monkeys to a stage of virulence at which it should, according to the experience of investigators, cause experimental poliomyelitis in all nonimmune monkeys injected The two control monkeys became severely paralyzed and were killed The third (Monkey 37) also became a good control, as the experiment proved that the animal from which 70 per cent of the serum was obtained (Monkey 21) was not an immune monkey

Monkeys 21 and 24, which came down with typical poliomyelitis symptoms and recovered, are of considerable interest in that they show that inoculation with cultures or filtrate of virus from nonpoliomyelitis sources, as determined by pathologic findings, does not confer immunity to a virulent virus

There remain the three monkeys which showed no symptoms following the test injection and were normal forty-five days after The question whether or not these animals showed any symptoms of infection after their previous inoculation is difficult to determine Monkey 14 had a definitely clumsy right arm for about twenty-four hours at a period seven days after his first injection, but no weakness could be made out His awkwardness rapidly disappeared, and he showed *none of the usual symptoms of irritability and tremor* No symptoms were observed in the other two monkeys

The important point of the experiment is that two of the three monkeys which were not affected by the test virus had previously been injected with material obtained from cultures of human poliomyelitis nervous tissue Monkey 14 received filtrate and emulsion of brain and cord of monkeys which had been paralyzed with rabbit virus and culture, the successive passages of this strain through three rabbits in the form of large lanceolate diplococci grown aerobically would seem to exclude any possibility that the small anaerobic organism described by Flexner and Noguchi could have been carried over Similarly, the culture used in Monkey 19 came from a single colony near the top of an agar shake culture Flexner and Noguchi[2] state that they have never obtained from poliomyelitic material *in solid medium an initial* growth of the small organism, aside from contaminations

We wish to record these observations as suggestive of the importance of immunologic studies with the pleomorphic streptococcus which has been isolated from the central nervous system in cases of human and experimental poliomyelitis

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END-RESULTS OF THE TREATMENT OF TUBERCULOSIS OF THE SPINE, HIP, KNEE AND ANKLE JOINTS

FROM THE RECORDS OF THE NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL

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During the past twenty years treatment of joint tuberculosis at the New York Orthopedic Dispensary and Hospital has been for the most part conservative, the main object being to procure as near as possible immobilization of the diseased joints

Weight bearing has been considered advantageous when it did not interfere with fixation, as in the knee and ankle joints, but of considerable disadvantage when it did interfere with fixation, as in the hip and spine

Ankle joint disease has been treated by fixation with a stiff ankle brace having a molded foot piece which fits inside the shoe, plaster having been used as temporary dressing only The use of crutches has been necessary at times when the disease has been too acute to permit of weight-bearing

In the treatment of knee joint disease a stiff leg support has been used, this is fastened to the shoe and extends to the groin, with a leather backing extending from the thigh band to the calf band, thus forming a trough in which the leg is firmly held by a muslin bandage, extending from the middle of the calf to the top of the brace The bandage is changed daily, thus assuring constant fixation, and ready accessibility to inspection by the surgeon The only exception to this rule has been in those cases with marked flexion deformity This has been reduced with a plaster cast supplemented by traction, the cast being changed weekly

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[1] Rosenow E C Towne E B, and Wheeler G W The Etiology of Epidemic Poliomyelitis Preliminary Note The Journal A M A Oct 21 1916, p 1202

[2] Flexner S and Noguchi H Experiments on the Cultivation of the Micro Organism Causing Epidemic Poliomyelitis Jour Exper Med, 1913 **18**, 465

* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June, 1916

TABLE 1—ANKLE JOINT DISEASE

Total number of cases of ankle joint disease treated	50
Number of boys treated	28
Number of girls treated	22
Number of cases with right ankle involved	31
Number of cases with left ankle involved	19
Average age on admission, years	5½
Duration of disease on admission months	7½
Average duration of treatment years	4½
Number patients cured	23
Number under treatment at present time	0
Number died	6
Number could not be located	21
Of the patients cured number with free motion with no deformity of foot	15
Number with limited motion with no deformity of foot	6
Number with limited motion and deformity of foot	2

The management of hip joint disease brings other factors into consideration Owing to the conformation of this joint, it is difficult under any circumstances to eliminate all motion This is at once rendered impossible when weight-bearing is allowed The Taylor hip splint has been used almost exclusively for this condition, since it eliminates weight-bearing by its crutch action While the traction on the thigh supplied by this apparatus does not separate the joint surfaces, as was formerly supposed, it does render valuable aid to joint immobilization

Up to the year of 1910 the Taylor spinal assistant was used entirely in the treatment of Pott's disease It is easy to apply, can be accurately adjusted, is not liable to cause excoriation, is sanitary and renders the spine constantly accessible for inspection by the surgeon In spite of the careful treatment given each patient, it has been impossible to prevent increase of deformity in a large percentage of cases This is especially true when the disease involves the dorsal region, because owing to the movement of the thorax during respiration, no form of apparatus yet devised is capable of accurately fixing this area It is true that in some cases of cervical and lumbar disease deformity can be prevented by mechanical apparatus

TABLE 2—KNEE JOINT DISEASE

Total number of cases of knee joint disease treated	156
Number of boys treated	87
Number of girls treated	69
Number of cases with right knee involved	83
Number of cases with left knee involved	73
Average age on admission years	6½
Average duration of disease on admission year	2
Average duration of treatment years	7
Number patients cured	106
Number under treatment at present time	7
Number died	7
Number could not be located	43
Of the patients cured number with lengthening of limb	10
Number with no change in length of limb	73
Number with less than 1 inch shortening	7
Number with less than 2 inches shortening	14
Number with more than 2 inches shortening	2
Number with flexion deformity without ankylosis	5
Number with flexion deformity with ankylosis	13
Number with ankylosis without deformity	13
Number with fifteen to ninety degrees flexion from full extension	36
Number with more than 90 degrees flexion from full extension	39

Because of the inability accurately to fix the spine, and thus prevent deformity, it occurred to Dr Hibbs that it might be possible by operative procedure to produce a fusion over the posterior aspect of the diseased and adjacent vertebrae, thus eliminating motion, limiting deformity, and giving nature a better opportunity of combating the disease

With this end in view, the first osteoplastic operation on the spine was performed Jan 9, 1911 The results obtained in those patients operated on in the early part of 1911 were so gratifying that for the past four years operation has been advised as a routine in all cases except those in which complication rendered the prognosis hopeless This treatment has been supplemented by a spinal assistant worn from six to eighteen months after operation Operative treatment is particularly advantageous in early cases, as it offers a means of limiting deformity and shortening duration of treatment

The accompanying tables report only those cases of joint tuberculosis in which the patients were under 16 years of age at the time treatment was begun, who came to the dispensary between the years of 1895 and 1910, and whose treatment was continued two or more years

TABLE 3—HIP JOINT DISEASE

Total number of cases of hip joint disease treated	461
Number of boys treated	236
Number of girls treated	225
Number of cases with right hip involved	242
Number of cases with left hip involved	219
Average duration of disease on admission years	2
Average age on admission, years	7
Average duration of treatment years	7½
Number patients cured	171
Number under treatment at present time	44
Number died	60
Number could not be located	215
Of cases cured number with less than 1 inch shortening	40
Number with less than 2 inches shortening	59
Number with less than 3 inches shortening	60
Number with more than 3 inches shortening	21
Number with adduction and flexion deformity combined	36
Number with flexion without adduction deformity	17
Number with bony ankylosis	13
Number with fibrous ankylosis	49
Number with no destruction of femoral head (Roentgen examination)	32
Number with partial destruction of femoral head (Roentgen examination)	86
Number with complete destruction of femoral head (Roentgen examination)	88
Number with partial acetabular destruction but no evidence of disease of femoral head (Roentgen examination)	6
Number with dislocation (Roentgen examination)	3
Number with thigh flexion from 15 to 90 degrees	73
Number with more than 90 degrees thigh flexion	45
Number with perfect function without deformity	35
Number with relaxation of knee joint	20

CONCLUSIONS

From the foregoing statistics it would seem that the following conclusions are justified

1 The regions most frequently involved in joint tuberculosis in order of frequency are the spine, hip joint, knee joint and ankle joint

2 The disease is more frequent in boys than in girls

TABLE 4—POTT'S DISEASE

Total number of cases of Pott's disease treated	517
Number of boys treated	284
Number of girls treated	233
Location of disease Cervical	47
Upper dorsal	71
Middorsal	118
Lower dorsal	105
Dorsal lumbar	100
Lumbar	76
Average age on admission years	5¼
Average duration of disease on admission years	1½
Average duration of treatment years	7½
Number patients cured	125
Number under treatment at present time	7
Number died	112
Number could not be located	227
Of the patients cured number with marked increase in deformity	50
Number with slight increase in deformity	42
Number with no increase in deformity	28
Number with no deformity	5
Number of patients operated on	48
Number of patients not operated on	77
Number of cases in which deformity increased, following operation	10
Number of cases in which deformity did not increase after operation	38

3 The disease affects the joints of the right side more frequently than those of the left

4 The average duration of treatment of all joint disease patients was six and one-half years

5 Joint tuberculosis is usually well advanced before diagnosis is made, the average duration of the disease on admission being one and one-half years

6 The average age of patients when admitted for treatment was six and one-fourth years

7 Ankle joint disease can be cured in most instances with little or no deformity

8 Of the knee joint cases seen, 15 per cent had more than 1 inch shortening, 25 per cent had ankylosis, 75 per cent. had more than 15 degrees motion from full extension, 38 per cent had more than 90 degrees motion from full extension

9 Of the hip joint cases cured, 34 per cent had less than 1 inch shortening, 24 per cent had varying degrees of flexion and adduction deformity, 28 per cent had bony or fibrous ankylosis, 55 per cent. had none or only partial destruction of the heads of the femora, 55 per cent had more than 15 degrees flexion from full extension, 9 per cent had some degrees of relaxation of knee joint

10 In Pott's disease the dorsal region is much more frequently involved than all the other regions combined, 73 per cent of all cases of Pott's disease had perceptible increase of deformity during the course of treatment

Of the patients operated on, 20 per cent had some increase in deformity following the operation but in no case was there actual increase in deformity of the area operated on

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ABSTRACT OF DISCUSSION

Dr John Ridlon Chicago The results of this work are remarkably good Of the twenty-three cases of ankle joint disease cured, fifteen had free motion, with no deformity of the foot It has been a belief of mine for many years that ankle-joint disease is the most favorable kind of chronic tuberculous joint disease we have to handle I have seen a tuberculous ankle joint go through several years of disease, have abscesses and sinuses develop, and go on to spontaneous opening and healing, without having been treated or having been seen by a doctor during the course of the disease recovery taking place without deformity and with almost a normal range of motion This may be the explanation why such remarkably large and good results followed in the cases of the disease reported in the paper In the knee-joint disease, there were eleven in which there was actual lengthening of the limb I have seen this in only one or two, or two or three cases, perhaps, and it is my conviction that these are the cases in which the knee joint disease is a syphilitic inherited disease and in which the disease is located, not within the joint itself, but at the epiphyseal line of the femur, as was the case in such instances of lengthening as I have seen There were five that had flexion deformity without ankylosis and thirteen that had flexion deformity with ankylosis at the knee joint I believe that if we can control our cases, we ought to be able to cure all without flexion deformity Of the hip-joint patients, 171 were cured

Only thirty-six had adduction and flexion deformity and seventeen had flexion deformity without adduction deformity, making a total of fifty-three treated by the long traction hip splint of Taylor I have used that splint all my life, and have never been able to get anything like such good results from it I am amazed that such a large proportion can be cured without adduction deformity It shows the careful attention that the patients have had, and is a wonderful result Eighty-eight had complete destruction of the femoral head, and only a partial acetabular destruction My experience, when I have had the advantage of Roentgen-ray examination, is that I have found a larger number showing destruction of the acetabulum than of the head, and unless these have all been carefully checked up and the sockets compared with the sockets on the other side by Roentgen-ray examination, I should doubt that result Of the 171 patients, 153 were cured without motion These are beautiful results, and show how absurd is Lorenz position that patients should be treated to secure ankylosis as soon as possible, and that it is impossible to cure these patients with motion We know it is possible to get a large number of patients cured with motion, and here are the results Twenty were found, after cure, with relaxation of the knee joint That has been one of the unpleasant results that I have had from the use of the long traction splint, and I have ceased to use it as soon as I find the knee joint begins to be lax I have used it in the past longer and in more cases than necessary, and I believe that we should have obtained as good motion and less deformity, with no relaxation of the knee joint, if we had discontinued its use and put the patients in some form of immobilizing apparatus, allowing them to walk on these limbs

Dr Reginald H Sayre, New York The institution is to be congratulated on the results shown in the paper, but the statistics do not give very much information Here are sixty-three patients getting well of hip disease with flexion and adduction deformity, but there is nothing to show how much of that was due to faulty care in the institution, and how much to inattention on the part of the parents and their lack of taking care of the children as they should There is nothing in the statistics to show how much deformity the patients had when they came under observation, as compared with what they had when they went out from under observation This is true of the statistics of most of our institutions I feel somewhat as Dr Ridlon does regarding the difficulty of preventing flexion deformity in the hip by means of the hip splint with simply a pelvic belt For years I have been using a thorax belt, as well, and since I have adopted this, the patients have not had flexion deformity, if there was regularity in the attendance of the patient I think that Dr Phelps was right in his contention that we should make the splints as nearly fool-proof as possible in dispensaries, and also in private practice In regard to the relaxed knees, I believe that they are caused by our own inattention, and that we often pull on the shin instead of on the thigh Frequently, when the patients legs itch, they pull the plaster off the thigh, and we pull on the shin, instead of the thigh, without noticing it Berkley Hill of London about forty years ago drew my father s attention to the possibility of doing that, and getting relaxed knees in the treatment of hip diseases by the Sayre splint My father said, "You get relaxation of the knee joint from it, because you pull on the shin, instead of on the thigh' That is the trouble in many of the relaxed knee joint cases This report distinctly shows that ankylosis is not the thing to be desired in joint disease I believe that the nearer you get to a normal joint, the more desirable the result will be That is not the German idea, and I know that some of my American friends think that you should strive for ankylosis of these joints I know, however, that I can frequently obtain movable joints, and as long as I can do so, I will follow the efforts to get them

Dr Charles M Jacobs, Chicago I should like to have Dr Humphries tell us whether he uses only long traction hip splints in all his hip cases, and if not, what are his results with the use of the plaster casts

Dr Robert E Humphries, New York Dr Ridlon says that he has found a greater percentage of cases with acetabular destruction than this report indicates The cases considered in this report as having had acetabular destruction showed no evidence of disease in the head of the femur on Roentgen ray examination Many cases showed destruction of both the head of the femur and the acetabulum and are therefore only considered under the heading of destruction of the head of the femur The good results obtained were due mainly to two factors first, a large outpatient nursing staff which keeps in constant touch with the patient, instructing the parents in the adjustment of braces and in the hygienic care of their children and also seeing that the patients are brought regularly to the dispensary, second, a country hospital where many of the cases reported were treated Patients with joint tuberculosis cannot be cared for properly at home without frequent visits by nurses and they can be taken care of very much better in a country hospital devoted solely to the treatment of joint tuberculosis The point advanced by Dr Sayre, that statistics are always inaccurate because one cannot tell what percentage of poor results are due to inefficiency on the part of the surgeon and what is due to the neglect by the parents, is a good one, however, I do not see how this can be ruled out Plaster of paris is never used except as a temporary dressing consequently it is impossible at this time to compare this form of treatment with that of plaster

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A PRIMIPARA AT 46

SEELEY ANDREWS, M D MINDEN NEB

The patient, a blonde, small boned normal weight 115 pounds, was born in Denmark June 17, 1870 She was a domestic until ten years ago then clerked in a store, and was married two years ago Her last menstruation occurred Feb 1, 1916 Pregnancy was uninterrupted except for threatened miscarriages in June and September 1916 when she had several pains and a good deal of hemorrhage Since the fourth month she had considerable albuminuria and the blood pressure had constantly been above 150 She had had dropsical conditions of the lower limbs and violent headaches at times

Two days before confinement I examined the patient, and found her in normal condition except for a funnel-shaped pelvis with a diameter of 8 cm The coccyx was movable and could be pushed well back Pains began at 12 p m, November 16, labor terminated at 9 p m November 17 Preparations were made for cesarean section because of conclusions from the prior examination Labor was normal, the head engaged and then delivery was accomplished after the medium forceps operation There was a slight laceration which was repaired at the time

I have been unable to find in the literature a record of a patient anywhere near this age at first confinement

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Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 199)

RENAL CALCULI

Renal calculi vary from small particles of precipitated salts—enough to make a granular sediment in the urine passed without pain or knowledge, to concretions large enough to cause colics, or to remain in the pelvis of the kidney Although it was thought that uric acid stones were very frequently found in the urine and that calcium oxalate stones seldom appeared, it has been shown recently that the latter occur most frequently, and form the largest element in the composition of renal calculi It has been shown also that these calcium oxalate calculi are not necessarily hard[59] As uric acid calculi may be very hard, and calcium oxalate calculi may be soft, Rowlands believes that the hardness of calculi depends on the rapidity of their formation — the slower the formation the harder the calculus

Most renal calculi contain uric acid or urates in small amounts However, these ingredients can be determined only by chemical analysis, as one cannot decide the character of a calculus from its color, shape and hardness Renal calculi may occur with or without gout, that is, gout and the formation of calculi are not closely related, according to Kahn The tophi in gout may be composed of sodium and ammonium biurate or possibly of calcium oxalate It is by no means to be taken for granted that they always contain uric acid or urates

Phosphatic calculi frequently have a uric acid nucleus Theoretically calcium oxalate and uric acid calculi should not be redissolved in the kidney or bladder after having once been formed, nevertheless, urate and phosphate deposits evidently do dissolve or break down repeatedly However, it has recently been shown by Haskins[60] that all neutral, alkaline or slightly acid urines will absorb uric acid, that the less acid the urine the more uric acid will generally be dissolved, and that a dilute urine will usually dissolve more uric acid than a concentrated urine Therefore, a freshly formed uric acid concretion may dissolve in the kidney or bladder, provided the urine is not too acid or too concentrated

The phosphate calculi are usually mixtures of ammoniomagnesium phosphate and calcium phosphate Calcium carbonate is rarely found, xanthin and cystin deposits occasionally occur Some irritation in the pelvis of the kidney is generally the primary cause of this deposit, a mucous shred or a clump of bacteria with its surrounding leukocytes forming a nucleus

SYMPTOMS

While patients can pass a large amount of gravel with little pain, the presence of these crystals in the urine is frequently accompanied by backache or pains shooting down the ureters, irritability of the bladder, and occasionally urethral stinging from the urine If a calculus is present in the pelvis of the kidney, repeated examinations of the urine and of the centrifuged portions will usually prove that there are more red blood corpuscles than normal The urine may show macroscopic blood and shreds of mucus streaked with blood Of course, blood in the urine does not prove that a calculus is the cause, but with other symptoms of calculi, with pain referred to one side, with ureteral catheterization showing blood coming from one kidney, and with the positive evidence of a roentgenogram, the diagnosis can be made It should, of course, be recognized that kidney pain and even kidney colic may not be caused by a calculus impinged in the orifice of the ureter The cause of this usually intermittent pain may be discovered by deduction or by the examinations just suggested

Sometimes this kidney pain is not referred to the back, but to the center of the abdomen, upward toward the liver, to the right side, or to the appendix region If the calculus has entered the ureter, the pain is referred down its length toward the bladder, soon pain is felt in the testicles in the male, and in the vulva in the female, and later, in the male, there is pain referred to the end of the penis It should be noted that renal calculi occur more frequently in men than in women

Besides blood albumin may occur in the urine, and hyaline casts may be found, owing to reflex irritation caused by the calculus If the pelvic irritation continues, inflammation may result with increased mucous secretion, followed by pus

Generally careful palpation of the suspected kidney will show that it is tender to pressure, it may be enlarged

A true renal colic comes on suddenly, often without previous symptoms, and is as likely to occur when the patient is in bed as when he is undergoing physical exertion In about half of the cases, pain starts in the lumbar region of the affected side comes gradually around toward the abdomen, and shoots down toward the bladder, as described The pain is generally accompanied by nausea and vomiting, a feeling of faintness, and a weak pulse Sometimes the skin is covered with cold, clammy perspiration, and the patient is on the verge of collapse At times the patient lies down with his pain, sometimes he is bent over with pain, and sometimes he writhes in agony There is often a desire to urinate frequently, sometimes without the ability to do so The temperature seldom rises Blood may pass into the bladder, the urine becoming discolored even before the calculus has passed When the calculus reaches the bladder, the cessation of pain is almost instantaneous During its passage down the ureter the patient is generally aware of its location, the pain leaving the back and being referred more and more toward the bladder and down into the genitals

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[59] Rowlands Biochem Jour 1908 3, 346 Mackarill Moore and Thomas Biochem Jour 1910 5 161 Kahn Max Study of the Chemistry of Renal Calculi Arch Int Med January 1913 p 92

[60] Haskins Jour Biol Chem August 1916

As soon as it has been determined that the calculus has reached the bladder, the patient is told to hold the urine for a while and then pass it as rapidly as possible from the urethra, so as to flood out the calculus from the bladder Until the calculus is found the urine should be passed either into a jar or through a strainer, and neither physician nor patient should be content until the calculus is found, or until it has been decided that the calculus has disintegrated somewhere during its passage Such a disintegration often occurs if the calculus has been rapidly formed and is soft, especially if it is of the urate variety

Recurrent attacks of renal pain, and often apparently ureteral pain, may occur without the passage of a calculus Such attacks are often accompanied by fever, and may be preceded by a chill If the pain is not very severe, it may be termed a backache, and the patient be told that he has malarial intermittent fever It is inexcusable, however, for such a diagnosis to be made, as the malarial element can be excluded by examination of the blood, and a careful examination of the urine, localization of the symptoms and roentgenoscopy should make the diagnosis conclusive In these instances not only does a large amount of mucus appear in the urine, but soon small amounts of pus are apt to appear, with signs and symptoms later of actual inflammation of the pelvis of the kidney

TREATMENT

The immediate treatment is the same as that of colic of the kidney The pain must be stopped and the tissues relaxed if possible No manipulations of the kidney or urethra should be attempted, as this will do more harm than good The patient should receive a hypodermic injection of ¼ grain of morphin with ¹⁄₁₀₀ grain of atropin, and, if possible, should sit in a bathtub filled with warm water up to his waist The relaxation caused by the water may stop spasm and aid the passage of the calculus Of course if the pain is intense and he is faint and vomits, or if the pain persists for an extended period of time, such bath treatment is impossible and inadvisable Under such conditions, hot, moist fomentations over the affected side will afford some relief

If the morphin has no effect within from a half to three quarters of an hour, another injection must be given, the character of the pain and the size of the person determining the dosage Another ¼ grain or ⅙ grain of morphin should be given, not combined with atropin, as it is unwise to repeat the dose of atropin Atropin acts slowly and persistently, and a large dose may cause stimulation of the heart and central nervous system instead of sedation of the peripheral nerves If the patient has been seen previously and is known to be very tolerant to morphin, the first dose may be much larger than the ¼ grain advised, large doses of morphin should not be given, however, since as soon as the calculus is either forced back into the pelvis of the kidney, or passes into the bladder, the intense pain immediately ceases, and the whole activity of the morphin is in evidence In fact, whenever large doses of morphin have been administered for acute pain and the pain has ceased, the patient should not be allowed to sleep for some hours, the nurse or attendant keeping him awake until part of the morphin has been eliminated The patient should be encouraged to pass the urine as soon as the bladder is considered full, and large drafts of water should be taken to wash out the stomach Black coffee may also be given to stimulate the nervous system and to counteract the effect of the morphin on the respiratory center, and later, the patient should be given a cathartic to relieve constipation caused by the morphin Food should not be given for some hours

In order to avoid an overdose of morphin, the patient may be given a few whiffs of chloroform to bring about the relaxation desired and to allow the morphin to show its effect. Sometimes the action of chloroform administered after a morphin injection is successful, the pain not recurring with such intensity, and the patient becoming quiet, although he knows that the stone has not passed Much chloroform should not be given, nor should it be given too frequently, as cardiac debility may be caused by the repeated use of even small inhalations No other drugs are of any assistance whatever in the treatment of renal colic

After-Treatment.—The calculus should be examined in order to discover its component parts, as its constituency may indicate the character of the food to be avoided It should be remembered that at the time of the deposit of one calculus there may have been others, and prophylactic measures should be taken, as other colics may occur The patient should drink large amounts of distilled water, or, if the urine shows high acidity, particularly if the calculus was found to be of the uric acid variety, he should be given alkalies and large amounts of sodium bicarbonate or good sized doses of potassium citrate The frequency and size of the dose depends on how much it takes to cause the urine to become alkaline On the other hand, if the calculus was found to be phosphatic and the urine only faintly acid, or alkaline, alkalies should not be given but rather something to make the urine acid—as hexamethylenamin or dilute hydrochloric acid—to be taken after meals

The diet depends on the character of the concretion and the condition of the urine Meat should for a time be avoided, provided the urine is highly acid and the calculus was composed of uric acid, calcium oxalate or urates If the urine is alkaline and the calculus was composed of alkaline salts, meat should be allowed Ordinarily, a milk and cereal diet is proper, the diet depending more or less on the amount of intestinal indigestion caused Such indigestion is to be guarded against both by the administration of laxatives and by arrangement of the diet, as the formation and absorption of by-products or toxins, and the presence of indicanuria have a tendency to cause more urinary deposits Needless to say, alcohol, excessive tea and coffee drinking, rich foods and fancy dishes should be prohibited Pure water is of great importime, and the patient should drink it liberally unless some affection of the heart or kidneys compels him to drink it in moderate quantities There is no artificial water, no mineral water, no lithia water which will dissolve as much salts as will distilled or ordinary pure water Consequently, nothing is attained by buying expensive bottled waters

In the presence of the conditions that cause urinary concretions, it is self-evident that a sojourn at some mineral spring, "cure" or sanatorium at which the diet, the exercise, and the hours of sleep and rest are all under supervision, will benefit such patients but let it be emphasized that it has not been proved that lithia waters will dissolve renal or gallbladder calculi, while lithia in almost any form, in any tangible amount, tends to cause gastro-intestinal indigestion

The subject of urinary solvents has recently been reviewed by Haskins,[61] whose findings may be thus summarized Piperazin may cause the urine to dissolve more uric acid, which may be further increased by giving with it sodium citrate or bicarbonate The best results occur when diuresis is not caused Lysidin increases the uric acid solution, but is not a very good agent, as large doses are required Lithium carbonate is of value only in large and dangerous doses, and is no better than sodium citrate or bicarbonate, in fact, sodium citrate, sodium bicarbonate or potassium citrate are very satisfactory uric acid solvents when given in sufficient doses to alkalize the urine In other words there is no necessity for administering any but these last three well known, simple drugs, especially when combined with the use of distilled or pure water

Unless it is desired to increase the uric acid excretion it is not advisable to administer atophan or novatophan in cases with calculi If it seems advisable to give these drugs, they should be combined with sodium bicarbonate and given in small doses, such as 0 3 gm (5 grains) two or three times a day Large doses of atophan may cause gravel, and sometimes colic

Normal urine should be acid, and to keep it alkaline for any length of time is generally bad treatment Therefore alkalies should not be administered over an extended period of time as such procedure may result in cystitis, pyelitis or possibly the precipitation of phosphate calculi Furthermore, any bacteria that may be lodged in the pelvis of the kidney or in the bladder, caused by the irritation of the previous calculus, will grow more rapidly in this alkaline medium

If before or after the passage of calculus, or while a calculus is suspected or known to be located in the pelvis of the kidney, the urine is alkaline or ammoniacal without treatment, hexamethylenamin and dilute hydrochloric acid should be given as suggested above If there is no marked bleeding from the kidneys or in the urine, the dose of hexamethylenamin should be 0 3 gm (5 grains), dissolved in half a glass of water, four or five times a day, or 0 6 gm (10 grains) in a glass of water, three times a day, for one or two weeks, the treatment should then be suspended, and perhaps later begun again Very large doses of hexamethylenamin are not necessary If the urine nevertheless remains alkaline, the hexamethylenamin is of no value, and one may conclude that the inflammation is serious, probably requiring surgical interference With many bacteria in the urine the hexamethylenamin treatment is the correct one Alkalies should not be given

In some instances the pain is referred to the region of the gallbladder, in others, particularly in colic of the right side, to the appendix Diagnosis in these cases is difficult, especially when not accompanied by hematuria

Therefore, before operative interference is decided on for possible appendicitis or gallbladder trouble, roentgenograms should be made It should be noted that not every calculus (even in the bladder) will cast a shadow, also that calcareous deposits in a tuberculous kidney may cast a shadow not unlike calculi When there is doubt, and when the pain is a chronic, one-sided pain, particularly of the right side, cystoscopy and ureteral catheterization should be performed, and in some instances a dilating wax-tipped bougie may be passed into the pelvis of the suspected kidney Pyelography may be utilized for diagnosis as with a stone in the kidney it has been asserted that the pelvis is generally more or less enlarged In acute cases without pus in the urine, and with a suspected appendix inflammation, a blood count showing a leukocytosis should indicate appendicitis When gallbladder inflammation is suspected, there should be increased temperature, probably leukocytosis, staining of tissues with bile — which may also be found in the urine and possibly distinct evidences of jaundice In chronic cases in which there may be a stone in the kidney, and operative interference necessary, not only the foregoing examinations, but also functional tests of the kidneys, and blood tests for nitrogen retention should be made If there has been a calculus in the kidney for some time, the function of that kidney is usually impaired, and there may be pus If the stone is not passed within a month after the renal colic, radiograms of the kidney should be made If no stone is thus located, it may be hoped it has dissolved or become disintegrated, if it is located, it should be surgically removed before the kidney is injured The kind of operation to be performed on a kidney found to harbor a calculus depends on the condition of that kidney, and on the functional ability of the other kidney This will be referred to later under another heading Blood in the urine, more than a few corpuscles which may always be present, points distinctly to a pathologic condition in the urinary tract, and is rarely coincident with appendicitis or gallbladder trouble

(To be continued)

Second Illness Census in Health District No 1—In the November *Bulletin* of the New York City Department of Health appear the results of two illness censuses taken in the experimental health district The first was taken in August 1915 and the second in February 1916 Comparatively few deaths were caused by respiratory diseases but the mortality from these diseases is excessively high in the negro and Italian districts The incidence of illness is higher at the extremes of life and the percentage of increase in illness during the winter months is greater in infancy and old age Up to the fifteenth year males appear to be more susceptible to disease than females, after the fifteenth year the reverse obtains The lowest illness rate was observed among clerks, and is due to their favorable age as well as to their sheltered occupation The family income is an important factor in morbidity and mortality The incidence of illness from all causes was found to decrease as the density per room decreased excepting when a great proportion of elderly persons entered into the calculations The conclusion is reached that these illness censuses have demonstrated the value of such intensive study It is therefore proposed to take a census of illness in those districts of the city in which the mortality is unusually high

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[61] Haskins H D The Uric Acid Solvent Power of Urine After Administration of Piperazin Lysidin Lithium Carbonate and Other Alkalies Arch Int Med March 1916 p 405

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SATURDAY, JANUARY 27, 1917

INFECTIOUS JAUNDICE — WEIL'S DISEASE — SPIROCHAETOSIS ICTEROHAEMORRHAGICA

In 1886, Weil[1] described the disease which subsequently more or less consistently has been called Weil's disease In case this term has come to include diseases of different etiology, which seems altogether likely, it naturally will require a more exact knowledge of the etiology than we now possess before the diseases in question can be fully and satisfactorily understood The recent discovery both in Japan and Germany of a spirochete as the cause of acute febrile jaundice, believed to correspond fully to what is meant by the term "Weil's disease," marks a long advance in the direction just indicated In Germany Huebener and Reiter,[2] and a few days later Uhlenhuth and Fromme,[3] apparently wholly independently, not long since announced that in guinea-pigs the injection of the blood of patients in the early stages of Weil's disease causes symptoms and changes similar to those of the human disease — fever, jaundice, hemorrhages, albuminuria, degeneration of liver and kidneys, etc The blood and urine of such guinea-pigs are pathogenic and transmit the disease to other guinea-pigs on injection or oral and rectal introduction, but not through the healthy skin The investigators mentioned also found organisms in the blood and organs, especially in the blood and then in the liver, of injected guinea-pigs and of patients with Weil's disease, which Uhlenhuth and Fromme[4] described as delicate, motile spirochetes The first description of Huebener and Reiter was less definite, but subsequently[5] they also regarded the organism as a spirochete and named it *Spirochaeta nodosa* It was found that, as the symptoms subside, specific spirocheticidal substances appear in the blood, and the serum becomes both protective and curative, hence the outlook for the development of a successful serum therapy would seem encouraging Following Ungermann, Reiter[6] announced that the spirochete can be grown on artificial mediums, the best medium being rabbit serum diluted with salt solution and covered with oil to exclude air His efforts to demonstrate by experiment that certain biting insects may transmit the spirochete do not seem to have yielded any decisive results

Turning now to the Japanese work, we find that Inada, Ido and their associates are studying a disease which occurs in various parts of Japan, especially in certain coal mines, and which corresponds in description to the description of Weil's disease, the death rate being about 32 per cent We find also that successful inoculation of guinea-pigs and demonstration of spirochetes were accomplished a year or more before the Germans announced their discoveries The most important results of the Japanese work are available in an English summary[7] which shows that guinea-pigs were inoculated in 1913 and spirochetes found in 1914 Here, too, are reported successful methods for growing the microbes on artificial mediums In human beings the spirochetes are most numerous in the blood on about the fourth and fifth days, and are easily demonstrable in the liver and elsewhere when death occurs early, but inoculation experiments and efforts to demonstrate the organisms in the tissues fail after the twelfth day or so In the urine, however, virulent spirochetes continue to appear much longer, sometimes for from forty to fifty days or more, they are also found sometimes in the sputum and feces Martin and Pettit[8] also have found the urine in Weil's disease infectious The disappearance of spirochetes from the blood and the organs (except possibly the kidneys) is associated with the development of specific antispirochetal substances, the action of which is shown by appropriate tests (Pfeiffer's phenomenon) The Japanese investigators[9] have immunized horses with cultures of the spirochetes and obtained immune serum with definite action, which serum is being tested in the human disease

Whether or not the spirochete described by the German workers is exactly the same as the one described by Inada and his co-workers is hard to say and need not be discussed any further now It is noteworthy that the main results of this highly interesting work in the two far separated countries on what for short we call Weil's disease correspond closely — demonstration of spirochetes in the blood and tissues of patients, demonstration of the production in guinea-pigs of a condition like the human disease with the presence of spirochetes by the injection of infectious blood, and demonstration of an antispirochetal immunity The results of the Japanese investigations, which are the earlier and the more complete, differ from the German in that they show rats and mice to be susceptible, and this is a point which should be carefully studied in the future, especially because, in a recent article by Ido[10] and others, evidence is brought forward that both house and what they call brown or ditch rats may harbor virulent spirochetes in their kidneys and thus play an important part in spreading the disease The Japanese also assert that in guinea-pigs the spirochetes may enter through the unbroken skin Finally, it may be pointed out that in the event the spirochetes described in Japan and in Germany as the cause of icteric infections — spirochaetosis icterohaemorrhagica (Inada)—prove to be the same, the name proposed by the Japanese, *Spirochaeta icterohaemorrhagiae* by virtue of priority, will replace *Spirochaeta nodosa,* suggested by Huebener and Reiter The further developments from the study of icteric infections by the methods just discussed may be awaited with much interest

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[1] Weil Ueber eine eigenthumliche, mit Milztumor Ikterus und Nephritis einhergehende Infektionskrankheit Deutsch Arch f Klin Med 1886, **39**, 209

[2] Huebener and Reiter Deutsch med Wchnschr 1915 **41**, 1275

[3] Uhlenhuth and Fromme Med Klin 1915 **11**, 1202

[4] Uhlenhuth and Fromme Med Klin 1915 **11**, 1264 1296 1375

[5] Huebener and Reiter Deutsch med Wchnschr 1916 **42**, 1

[6] Reiter Deutsch med Wchnschr 1916 **42**, 1283

[7] Inada Ido Hoki Kaneko and Ito The Etiology, Mode of Infection and Specific Therapy of Weil's Disease (Spirochaetosis Icterohaemorrhagica) Jour Exper Med 1916 **23**, 377

[8] Martin and Pettit Bull de l Acad de med de Paris Oct 10 1916

[9] *Jour Exper Med 1916, **24**, 485*

FOOD FAT AND MILK FAT

So long as Virchow looked on both the fat globules and other constituents of milk as the direct products of a fatty degeneration or disintegration of the cells of the mammary gland, there was little consideration of the possible interrelations of the food fats and those which appeared in the mammary secretion Later, when pathologists like Arnold of Heidelberg concluded that even the freest secretion of milk may take place without any degeneration of the cells of the mammary glands, no emphasis was given to the direct interdependence of food and milk fats It was believed at that time that the components of the fat are brought to the lactating cells from without in a water-soluble form, and that the fat is newly constructed from such material within the cellular protoplasm by functioning vital processes

There can be no doubt today that various ingested substances — for example, drugs — may pass as such into the milk Intoxication of infants through poisonous substances taken by the mother and transferred into her milk are not unknown For the most part, however, these are accidental constituents of milk, and represent distinctly foreign substances If they are fairly soluble they are likely to travel to all of the tissues and secretions before they can be completely eliminated by the parent organism The appearance of such traces of foreign derivatives in milk, therefore, is presumably largely fortuitous rather than due to a special selective secretory activity on the part of the glands producing it

The problem of the appearance of the fats of the food in the fat of the milk offers somewhat different aspects from the foregoing, in view of the fact that fats in general are not essentially "foreign" to milk Here again, however, prevailing views of metabolism have influenced the decision as to the transport of food fat So long as it was believed that fats are absorbed as such and carried in the circulation in the form of emulsified particles to various regions of the body, there was no obvious limitation to a rather direct transfer of fat from food to milk It was in this belief that investigations with a large number of fats not characteristic of the lactating animal were made The feeding of such extraneous fats as cottonseed oil, sunflower oil, peanut oil, cocoa butter, linseed oil, sesame oil, almond oil, palm oil, etc, seemed to remove all doubt of their transfer in part into the milk

Latterly several circumstances have served to present the question of the origin of milk fats in a still different light The demonstration of the actual digestion of ingested fats prior to their distribution and utilization in the body is now generally accepted Fats are not absorbed unchanged, though they may be reconverted to their original form after passage out of the alimentary canal The conviction that lipoids such as lecithin and cholesterol may play a significant part in the metabolism of the fats has gained ground, especially through the studies of Bloor[1] But in addition to this, account must now be taken of the growing belief that we must distinguish between cell fat and stored fat, such as is found in the fat depots of the body Leathes and his collaborators, in particular, are largely responsible for the doctrine that the fatty acids derived either from the foods or from the stores in the body are prepared, so to speak, for metabolism by a preliminary chemical change in the liver Here mobilized fat, like fat absorbed from the intestine is, in the first instance, said to be altered so that it is composed to a much larger extent of unsaturated fatty acids This "desaturation" of fatty acids is believed to produce new fats which offer less resistance to the combustion processes which furnish energy to the organism The unsaturated unions are the weak links in the carbon chains of the fatty acids, and form the presumable points of attack in the catabolic disintegration of the fats Thus fat from the connective tissues where it is stored differs from that which has passed through the liver as a preparation for subsequent oxidation

In the light of the foregoing, it is not unreasonable to inquire whether milk fat, too, represents a specially prepared sort of fat, uniquely valuable as a ready source of energy, or whether it corresponds more closely with the less differentiated fats which find their way temporarily into the connective tissue fat depots of the organism If milk fat is formed entirely de novo in the mammary gland, it may be expected to be specific in character and constant in composition independently of the food factor, but even if the milk fat represents in whole or in part the dietary fats, it is quite conceivable that the latter may have been "worked over" in the liver or some other glandular structure so as to become specifically like the fat characteristic of milk The final alternative is that the milk fat is essentially a mixture of imported contributions varying largely with the fat of the diet Breed characteristics, such as the indisputable differences between Holstein and Jersey or Guernsey milk, might, in this event, merely affect the quantity rather than the quality of the fat secreted in milk

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[10] Jour Exper Med 1916 24, 471

[1] The Lipoids ("Fats") of Human Blood editorial The Journal A M A Sept 23 1916 p 956, Blood Lipoids and Diabetes Nov 25 1916 p 1602

In attempting a reinvestigation of the old question as to the extent to which fat present in the food of the cow imparts certain of its own properties to the milk fat, the officers of the Georgia Experiment Station have reverted to the feeding of cottonseed oil, a fat mixture of distinctive character[2] They have found that when cows were fed cottonseed oil, the properties of the butter fat differed from those of a butter fat produced when the animals were not receiving the cottonseed oil The change was greater with the feeding of a large amount of oil It did not occur with maximum intensity immediately, but showed a gradual increase until the seventh day of continued feeding Certain constituents of cottonseed oil could be detected in the butter fat within from twelve to thirty-six hours after feeding the oil

Such were the experimental facts It must not be assumed, however, that a simple transfer of cottonseed oil to the milk fat had occurred In general, the change in properties on feeding oil were the same as those observed on an advance of several weeks in the period of lactation Cottonseed oil, when fed in small quantities, was not transferred in any considerable amounts directly to the milk fat Some of the substances of which the oil is composed apparently were transferred in a greater amount than others The constituents of the oil did not reach the milk fat in the same combinations or proportions in which they exist in cottonseed oil The Georgia investigators accordingly suggest that cottonseed oil and other oils are not transferred, in any considerable quantity, unchanged in composition to the milk fat, but either undergo a kind of "selective absorption" by the animal body, or certain of its constituents are considerably changed before reaching the cells of the milk gland

The evaluation of the Georgia data will doubtless vary with the minds of different readers There are not a few who might look on them as evidence of a marked qualitative variability of milk, and consequently look on the character of the fat supply to a lactating female as a matter of supreme importance Von Furth[3] has presented this point of view by the remark that often the trouble met in changing wet-nurses may in the last count be connected with the biochemistry of fat He adds that there is justice in the demand that in the first place the milk of nursing women be kept constant by selection of an appropriate fat mixture, and again that by proper feeding of cows a milk be produced with fat similar to the fat of human milk We are more inclined, however, to see in the Georgia and other experiments an indication of a vigorous tendency on the part of the body as a whole and the mammary gland in particular to prepare a fat product of fairly uniform character The small variations incident to enormous alterations in the diet tend, in our belief, to substantiate the probability of the essential though not absolute independence of the quality of milk fat from its food precursors Sometimes, in large excursions from the usual dietary conditions, the transforming biochemical mechanisms, if they may so be designated, may be almost overwhelmed by the task of modifying food fat sources for mammary output Small quantities of unusual adventitious products may escape, but this does not appear to represent the usual or seriously significant occurrence Furthermore, it remains to be demonstrated that milk fat containing incidental traces of less common fat residues is in any way detrimental to health The natural yellow color of butter fat is varied by dietary factors without at present exciting any suspicions of undesirability

TEMPERANCE DRINKS AND THE SODA FOUNTAIN

Millions of dollars, representing the return to the government as revenue from the manufacture and sale of alcoholic beverages, attest the enormous consumption of the latter in this country each year Whether it is attributable to the wave of prohibition which is slowly sweeping over this country, or to the development of new tastes side by side with the long standing demand for spirituous liquors, or to both factors combined, in any event a rapidly developing trade in so-called temperance beverages has manifested itself for some time In part this has represented an augmented consumption of drinks like ginger ale and root beer, which have long enjoyed a limited popularity in the United States In larger measure the new trade involves a growing sale of products scarcely used at all in a commercial way a decade or two ago Thus, referring to the grape juice industry, a recent writer[1] reports some astonishing figures for the stimulation of trade in this beverage The production of American unfermented grape juice in the year 1914 amounted to nearly five million gallons in the Chautauqua belt alone

The consumption of what is commonly termed soda water in this country must be much larger The United States has been called the greatest soda fountain country in the world In fact, soda water of the sort dispensed flavored with fruit syrups as a fountain beverage is distinctly an American drink which has found popularity in few other countries, with the possible exception of Australia, where the soda water business is said to be conducted much as it is here The habit of drinking soda water at a "stand" of some sort in summer has gradually stimulated a demand for "hot drinks" at the same establishments in winter, so that hot coffee, chocolate, malted milk, bouillon, etc, have likewise come into vogue for sale to those who drink cold nonalcoholic beverages in summer

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[2] Smith F H Wells C A and Ewing P V The Changes in Composition of Butter Fat Produced by Feeding Cottonseed Oil Bull 122 Georgia Expt Sta June, 1916

[3] Von Fürth O *Chemistry of Metabolism translated by A J* Smith, Philadelphia 1916 p 425

[1] *Mendel L B* Changes in the Food Supply and Their Relation to Nutrition, Yale University Press, New Haven 1916 p 41

It is not easy to estimate the magnitude of the current enterprise in this field The retail value of the sodas, "sundaes" and other fountain beverages or refreshments for 1916 has been placed at $500,000,000 For ice cream it was estimated by a statistician of the National Association of Ice Cream Manufacturers that 200,000,000 gallons would be consumed in this country in 1916 At 40 cents a gallon, which is about the minimum price at which ice cream is sold, the American public would be expending no less than $80,000,000 for this delicacy

During all the years in which the liquor saloon has been in existence, scarcely any attempt has been made to regulate its practices in the interest of public or personal hygiene On the other hand, public sanitary regulation of the operation of the soda fountain business has already been introduced within the few years in which the new trade has begun to thrive so prominently In some places the regulations have become more stringent than the restrictions on restaurants, or saloons in which eating and drinking utensils are used For example, in one region the health authorities have decreed that all glasses, cups, spoons, etc, used at fountains must be sterilized after each service Another state has ordered the use of individual paper cups unless all glasses are sterilized Similar legislation having in view the prevention of the spread of communicable disease through the use of unclean glasses has been adopted by local health boards or sanitary authorities in various places Furthermore, provision has been made here and there for medical examination of employees so that the beverages shall not be dispensed by persons liable to spread disease in their occupation How difficult it would be either to secure or to put into practice comparable sanitary regulations in the liquor saloon, where under the existing conditions of the traffic the hygienic hazards must be decidedly more prominent

DUST AND ITS DANGERS

In the clinic of occupational diseases it is well recognized that dust of various sorts is a menace to the health of a large number of wage earners For 1915 it has been estimated by Frederick L Hoffman that at least 10 per cent of workers labored under conditions more or less detrimental to health and life on account of atmospheric pollution commonly classed as dust[1] This impurity may be of the most diverse sorts There are insoluble inorganic dusts, including metals in a state of fine division, silica, sand, coal, marble and similar powders Potter's asthma, grinder's phthisis, and the siderosis among metal polishers and others engaged in metal working are familiar illustrations of the harm done by this class of dusts, which usually produce irritation through being inhaled Others represent soluble inorganic impurities which are more readily absorbed after being swallowed, and are dangerous because of their inherently poisonous qualities A third class, the organic dusts, comprises such widely varying materials as "sawdust, fur, skins, feathers, broom and straw, grains and flours, jute, flax, hemp, cotton, wool, carpet dust, street sweepings, tobacco-box dust, hides and leather, felts, rags, paper, horsehair, etc Typical of the diseases caused by organic dusts are flax dressers' disease, a kind of pneumonia due to the inhalation of particles of flax, alkaloidal poisoning from African boxwood by workmen engaged in shuttle making, and malignant pustule and a febrile disease among rag sorters "[2]

Most persons contemplating the subject of dust and its hygienic aspects for the first time assume that the dangerous factor lies in the distribution of microorganisms in the atmospheric contamination Dust thus is a convenient term which may include a large variety of atmospheric impurities The dust of the home, the schoolroom, the theater or the street can scarcely be of the same character, even if in attenuated amounts, as that which obtains in the distinctively dusty trades Of what does it consist? A recent analysis of the "dust" collected in a vacuum cleaner from the book shelves of the library of an educational institution[3] disclosed, on microscopic examination, hair, green wool, white wool, cotton fibers, fly wings, sand grains, wood, paper, string, celluloid, pieces of finger nails, metallic iron and leather The hair was probably derived from soft hats, the wool and cotton fibers from clothing, sand from the mud tracked in on shoes and the gradual pulverizing of the floor, fly wings from dead flies, and paper from book leaves The remaining articles present explain themselves In a water suspension of this dust, no life could be detected with a lens magnifying 320 diameters

A qualitative examination of the "library dust" showed the presence of the elements iron, aluminum, sodium and calcium, which are easily accounted for by the wear and tear of materials of obvious proximity One of the chief points of interest was the finding of the *Bacillus coli communis* Rees suggests that it may come from several sources, the most probable one being the hands while handling books The bacillus might also be present because of the coughing, sneezing and possible expectoration of people using the library The total number of bacteria in the dust of such a confined space as a library would naturally be high, as the dust would catch the bacteria and have a tendency to hold them

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[1] Hoffman, F L, Statistical Studies Relating to Occupational Diseases in Kober G M, and Hanson W C Diseases of Occupation and Vocational Hygiene Philadelphia, 1916 p 777

[2] Baskerville, C New York Med Jour, Nov 23 and 30, 1912

[3] Rees R R, The Analysis of 'Dust' Collected in a Vacuum Cleaner from the Book Shelves of the Rensselaer Polytechnic Institute Library, Science Oct 27 1916, p 618

It might be argued, as Rees does, that where the colon bacillus survives, more harmful bacteria might also remain, such as those producing typhoid fever, cholera, diphtheria and especially tuberculosis, which latter disease is caused by a bacillus especially able to resist the sterilizing influence of drying But the experience of the comparative freedom of paper money, books, and many other articles frequently handled by man, from extensive contamination with harmful micro-organisms gives a feeling of a security from such possible sources of bacterial danger which may or may not be entirely justified Only extensive researches can determine the real limits of safety from the commonest dangers of dust in everyday life

Current Comment

COMPULSORY HEALTH INSURANCE

The United States is practically the only large industrial nation which has not adopted compulsory health insurance A number of states have enacted workmen s compensation laws, which may be regarded as the entering wedge, this will undoubtedly be followed by similar legislation which will provide compensation for medical care during disability from sickness, and include not only the breadwinner but also the dependent members of the family While the medical profession has a very practical interest in the subject, because of the duties and responsibilities assigned to it in the carrying out of these laws, few physicians have recognized its importance The mass of the members of our profession seem not to have awakened to the fact that the interests of the public, as well as their own, require them to become informed on the question and to take an intelligent, active part in framing legislation which is already being considered in a number of states In The Journal, May 6, 1916, it was announced that a committee under the chairmanship of Dr Alexander Lambert, chairman of the Judicial Council, had been appointed to compile information in regard to social insurance and the relation of physicians thereto This committee submitted a report to the House of Delegates[1] at the Detroit session The American Association for Labor Legislation prepared a preliminary draft of a model bill on social insurance in which it has properly left blank the section providing for medical services, while asking the assistance of the medical profession to work out this phase of the problem In this issue is a paper on "Health Insurance and the Medical Profession"[2] by Dr Lambert in which suggestions are made for defining the conditions for medical service under social insurance Like the model bill of the American Association for Labor Legislation, Dr Lambert's paper is not to be regarded as the final word on the question, but as suggesting a basis for discussing the conditions under which medical services may be rendered in the proposed scheme of health insurance The Journal again emphasizes that the time for the medical profession to interest itself in social insurance legislation is now, while legislation is in a formative stage It is hoped that the publication of Dr Lambert's paper will be followed by a constructive discussion of health insurance in the columns of The Journal by its readers

A MEDICAL COMMISSION, BUT NO MEDICAL MAN ON IT

According to the newspapers, President Wilson has nominated as members of the workmen's compensation commission, to administer the federal Employees' Liability Act, the Reverend R McMillan Little of Swarthmore, Pa, a preacher in the United Presbyterian church, a Mrs Axtell of Bellingham, Wash a social worker and a defeated candidate for Congress, and a J J Keegan of Indianapolis, a member of the International Association of Machinists, then a member of the state legislature, and more recently a commissioner of conciliation in the Department of Labor The first of those mentioned above is stated to be a Republican, the second a Progressive, and the third a Democrat, none is a physician Probably 90 per cent of the work of the commission will be medical in character

POISON THE FLY

Although this is not "fly season" in most parts of the United States, the desirability of preparedness may serve as an excuse to refer to antifly measures at this time In *Public Health Reports* it was pertinently remarked

> The practice of swatting despite the faulty biologic reasoning so often urged by its enthusiastic supporters, whereby the effectiveness of a single swat is multiplied many millionfold, certainly does possess the advantage of a definite 100 per cent efficiency Its disadvantage lies chiefly in the effort and earnestness which it demands, factors which are apt to be affected by rising temperature inversely as the multiplication rate among the flies[1]

The problem of destroying the fly larvae in their breeding places, notably in horse manure, is complicated by the fact that many efficient larvicides ultimately produce an injurious effect on the manure so that it cannot be applied in agricultural practice without damage to plant growth This has greatly restricted the promise which borax early gave as a suitable and comparatively inexpensive larvicide The cost of any treatment which must be extensive is also a restrictive item with respect to the application of some otherwise efficient agents Products like cyanids, Paris green and other arsenicals are potent but too toxic for general use on a large scale The newest recommendation of the Department of Agriculture is powdered hellebore, an effective larvicide without action on plant growth[2] For killing flies which have escaped destruction in the larval stage, the Hygienic Laboratory of the Public Health Service has found an eminently satisfactory new agent in salicylic acid In 1 per cent solution it destroys flies which consume it Salicylic acid, unlike the more potent 1 per cent solution of formaldehyd, is not an objectionable substance to handle, and there is little danger of toxic effects from accidental consumption of considerable doses of it With such powerful chemical guns ready to be trained on both the larvae and the adult flies, the antifly campaign of the coming season ought to be memorable for the beneficent effects of its potent instruments of destruction

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[1] Report of the Committee on Social Insurance The Journal A M A June 17 1916 p 1951

[2] See page 257

[1] Phelps E B and Stevenson, A F Fly Poisons Pub Health Rep 1916 **31** 3033

CHEAP ALUM FOR WATER PURIFICATION

Any development of the process of water purification that diminishes cost is worthy of consideration from the public health standpoint Such an improvement appears to be the new method of making alum recently devised by a well known water purification chemist in this country The process is already in use in four water-filter plants in the United States and one in Canada The chemical improvement is described in a recent number of *Engineering News*,[3] and the notable advantages it presents are there set forth in detail Not only is the alum produced at a low cost, but also it is more effective as a coagulant The advantages are thus summed up

> Alum is made regularly at the several works, by means of simple and low-cost installations It is made up daily—"as you wait," almost—by the ordinary force and under the direction of the chemist or other head of the purification works The resulting product is not only much cheaper than commercial alum but is also far better suited to use as a coagulant—one reason why it is cheaper

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[2] Cook, F C, and Hutchison, R H Experiments During 1915 in the Destruction of Fly Larvae in Horse Manure, Bull 408 U S Dept Agric Oct 28, 1916

[3] Engin News Jan 4 1917 p 36

Proposed Investigation of Habit-Forming Drugs—In a twenty-page pamphlet for the information of Congress, for consideration in connection with pending amendments to the Harrison Narcotic Law, Charles B Towns, New York, urges that Congress empower the president to appoint a committee, with adequate authority and money, to conduct hearings and make investigations on the drug problem The findings of such a committee, it is said, would enable the states to enact properly correlated legislation According to Mr Towns not more than 10 per cent of those addicted to drug habits are excusable because of physical disabilities Pointing out defects in the Harrison Narcotic Law, Mr Towns claims that any person may have as many physicians as he chooses prescribing for him at the same time, and says "The doctor does not have to find out whether or not the patient is a confirmed drug taker, he can take the man's word for it and prescribe just what the patient asks for" He suggests that the manufacturing, selling, prescribing and administering of opiates be strictly limited to crude opium, laudanum and paregoric (he does not mention apomorphin), which would not inconvenience the medical profession, and would eliminate every unfavorable hazard incident to the use of habit-forming drugs The physician is to be held to an accounting for such opium, laudanum and paregoric as he personally prescribes or administers The regulation of the sale of hypodermic syringes is recommended The nurse is not to be allowed possession of a hypodermic needle except on a physician's order, and then the dose administered is to be at all times strictly regulated by the physician

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

ALABAMA

New State Health Officer—Dr William H Sanders, Montgomery, who has served the state for nearly twenty-one years as state health officer, retired, January 9, on account of ill health Dr Samuel W Welch, Talladega, has been appointed health officer——Dr William W Dinsmore, Montgomery, will become state prison inspector, about April 17, succeeding Dr William H Oates, Montgomery

CALIFORNIA

New Buildings at County Hospital—Bids have been received by the Los Angeles County Board of Supervisors for the construction at the County Hospital of seven additional units five tuberculosis wards, each averaging 44 by 150 feet, a dining hall and a maternity building

Proposes Merger of Health Board—A bill is to be introduced in the legislature by Senator Edgar A Luce, San Diego, which provides for the merger of the state boards of health, medical examiners, dental examiners, optometry and embalmers in a single board to consist of three members

State Examiners' Board Elects Officers—At the annual meeting of the State Board of Medical Examiners, held in Sacramento, January 9, Dr Arthur M Smith, Oakland, was elected president, Dr Percy T Phillips, Santa Cruz, vice president, and Dr Charles B Pinkham, San Francisco, secretary-treasurer (reelected) At this meeting the board is said to have revoked the license of Dr Calvin L Case, Oakland, charged with having prescribed morphin for a drug addict not under his continuous care

Memorial Hospital—Plans have been prepared for the new John P Scripps Memorial Hospital for working men and women in San Diego As a preliminary step, the San Diego Diagnostic Group Clinic for John P Scripps Foundation is at once to be put into operation in the Scripps residence which has been donated for that purpose Mr Scripps guarantees a sum up to $250,000 for the clinic and the erection, furnishing and equipment of the hospital He also agrees for a term of years to meet, up to the sum of $30,000, any deficit in the amount required for the maintenance of the institution Drs Bernard J O Neill, Harry C Loos, John E Jennison, Vernon G Clark and Harold A Thompson comprise the executive committee of the institution

CONNECTICUT

Personal—Dr Edward J Murray, Meriden, has been appointed superintendent of the Southwestern Minnesota Tuberculosis Sanatorium, Worthington, Minn

Hartford Physicians Elect—At the seventieth annual meeting of the Hartford Medical Society, January 2, Dr Charles C Beach was elected president, Dr Charles E Taft, vice president, Dr Amos T Harrington, secretary, and Dr Philip D Bunce treasurer The Hartford Medical Society Cup was awarded to Dr Everett J McKnight

ILLINOIS

Personal—Dr Charles B Johnson, Champaign, has been appointed a director of the Champaign County Tuberculosis Sanatorium, which was authorized at the November election ——At the annual meeting of the staff of St Francis' Hospital, Kewanee, January 11, Dr Peter J McDermott was elected president, Dr Gideon H Hoffman vice president, and Dr H Nelson Heflin, secretary, all of Kewanee——Dr William L Hanson, Belleville, is on his way to England, where he will enter the Military Hospital Service——Prof Julius O Stieglitz has been elected president of the American Chemical Society for 1917

Chicago

Smallpox—Two cases of smallpox were found, January 14, one in St Luke's Hospital, and the other in Cook County Hospital Both patients were taken to the new Isolation Hospital

New Superintendent of Hospital—Sister Mary Rita of the Order of Mercy has assumed the duties of superintendent of the Mercy Hospital, succeeding Sister Mary Raphael McGill, deceased

Convalescent Home for Wesley Hospital—Mrs Sarah Wheeler has donated her home and property in Lake Bluff, valued at $50,000, to the Wesley Memorial Hospital The property will be known as the Wheeler Convalescent Home

New Officers—Chicago Society of Internal Medicine, January 22 president, Dr Robert B Preble, vice president, Dr Rollin T Woodyatt, and secretary-treasurer, Dr Charles A Elliott (reelected) ——Chicago Ophthalmological Society, January 15 president, Dr Paul Guilford, vice president, Dr Francis Lane, and secretary-treasurer, Dr Major H Worthington

Laboratory Building for County Hospital—A subcommittee of the executive committee of the Cook County Hospital staff recently prepared a memorandum which was submitted to Mr Peter Reinberg, president of the Cook County Commissioners, concerning the provision of a laboratory building for the Cook County Hospital The committee consisted of Dr Edwin R LeCount, chairman, and Drs J Rawson Pennington, Maximilian Herzog, David J Davis and Robert F Zeit The committee notes that there is great need of a new building for laboratory service on the Cook County Hospital ground and that the temporary quarters now occupied are crowded and wholly inadequate An investigation was made several years ago concerning the need of the institution for a laboratory building, and this need is now much greater The original report of the committee appeared in the transactions of the county board, and it is proposed to elaborate the report and bring it up to date if the commissioners decide to take action in the matter

Personal—Dr William Healy who has been head of the Chicago Juvenile Psychopathic Institute for the last seven years, has resigned to accept the position of director of the Harvey H Baker Foundation, Boston This foundation was established in memory of the late Judge Baker of the Juvenile Court, to aid that court by making psychopathic examinations of infant children Dr Healy will be given a complimentary dinner January 30 by the Chicago Ethical Society at the City Club ——Dr George G Davis lieutenant colonel of the Royal Army Reserve Medical Corps spoke before the Chicago Alumni Club January 20, on his experiences in a British base hospital in France ——Dr Roscoe C Giles heads the list of eligibles for appointments on the staff of the Municipal Tuberculosis Sanatorium ——Dr Arthur Schuettler was operated on for appendicitis in the Ravenswood Hospital, January 18 ——Dr Arthur C Beverlein, Colon, Panama, is visiting his parents in Chicago ——Dr William D Napheys has been appointed a member of the staff of the Government Hospital for the Insane Washington, D C ——Dr Allen B Kanavel delivered three addresses on cancer in Lincoln, Neb, January 6 speaking before the Women's Club the physicians of the city and the public

KANSAS

Personal—Dr Bert L Stinson, Great Bend, has been elected health officer of Great Bend and physician of Barton County ——Dr Charles M Siever, Holton, has been elected physician to the Kansas State Agricultural College, Manhattan

Asks Large Appropriation for Sanatorium—Dr Chauncey S Kenney, superintendent of the State Tuberculosis Sanatorium, Norton has asked an appropriation of $180,000 for new buildings and improvements, and one of $120,000 for maintenance and salaries for the next two years Dr Kenney claims that these appropriations will permit the construction of six new pavilions accommodating twenty patients each an administration building, water works and fire protection, and enough help to farm the 240 acres of land at the institution

MAINE

Licenses Revoked—An official communication states that at the meeting of Maine Board of Registration of Medicine, held Nov 14 and 15, 1916 the licenses of Clarence J Prickett and Reuben Calhoun Clinkscales were revoked on account of fraud in connection with the obtaining of their licenses, both having claimed to have graduated from the extinct Southern College of Medicine and Surgery of Atlanta, Ga

New Officers—York County Medical Society, eighty-seventh quarterly meeting, at Biddeford president, Dr Charles E Cook, South Berwick, vice president, Dr Clarence F Kendall, Biddeford and secretary, Dr A Leon Jones, Old Orchard ——Kennebec County Medical Society, at Augusta, December 7 president, Dr Oscar C S Davies, Augusta, vice president, Dr Arthur U Desjardins, Waterville, and secretary, Dr Sylvester J Beach, Augusta

MARYLAND

Hospital and Ambulance Companies Mustered Out—Field Hospital Company No 1 and Ambulance Company No 1, commanded by Major J Harry Ullrich, M C, Md N G, which have been on duty at Eagle Pass for six months, were mustered out of the United States service, January 6

Meetings—At the annual meeting of the Baltimore County Medical Society, held January 17, officers were elected as follows president, Dr Martin F Sloan, Towson, vice president, Dr J Percy Wade, Catonsville and secretary-treasurer Dr Frank W Keating, Owings Mills It was decided to devote the next meeting to mental diseases of children and to invite the Baltimore and the Howard County Medical associations to meet with them

Personal—Senior Surg Henry R Carter, U S P H S Baltimore, superintendent of the Marine Hospital, is at Columbia, S C, where he will superintend sanitary work on the new filtration plant in that city In his absence Dr Charles Vogel, Baltimore will have charge of the hospital ——Dr William E Martin, Harrisonville, narrowly escaped being killed recently when his automobile skidded on the ice and rolled over an embankment He escaped with body bruises ——Drs Herbert Schoenrich and G Milton Linthicum, Baltimore, who have been serving with the Fifth Infantry have resigned ——Dr Archibald C Harrison, Baltimore, was *operated on recently for appendicitis at St Joseph's Hospital* ——Dr John F Hogan has been placed in charge of the recently organized Bureau of Communicable Diseases, Baltimore Under this bureau are included health wardens, nursing, the tuberculosis dispensary, school physicians, vital statistics fumigation, complaints, tenement houses and the Sydenham Hospital ——Dr Stacy T Noland, Cambridge, assistant physician at the Eastern Shore State Hospital, has resigned to accept a similar position at the Montana State Hospital for insane ——Dr Richard E Yellott, Fallston is reported to be seriously ill at the Hebrew Hospital, Baltimore

MASSACHUSETTS

New College of Pharmacy Building—Through the generosity of George Robert White, Boston, the Massachusetts College of Pharmacy is to have a new building located on Longwood Avenue, Roxbury

New Bills Regarding Tuberculosis—The Massachusetts Association of Boards of Health has submitted two bills to the Massachusetts legislature The first is an act relative to the removal of certain persons affected with tuberculosis, and the second an act to provide for the care and treatment of wilfully careless and incorrigible tuberculosis patients

Asks Time to Study Insurance Problem—Dr Samuel D Woodward, president of the Massachusetts Medical Society has presented a petition asking the special recess committee on social insurance of the state legislature not to recommend any legislation on health insurance until the medical profession and the public have had more time to study the question

Health Boards Meet—The annual meeting of the Massachusetts Association of Boards of Health was held at the Brunswick Hotel Boston, January 25 Dr Donald B Armstrong, Framingham, presented a paper on "The Community Health and Tuberculosis Demonstration in Framingham," and Dr Thomas F Harrington, Boston, medical deputy commissioner of the state board of labor and industries, delivered an address on "Industrial Health"

Personal—Dr Orran G Gilley, physician at the Charles Street Jail, Boston, for nearly five years, has resigned and has been succeeded by Dr Harry H Colburn ——Dr Thomas B McQuaid has been appointed city physician of Everett succeeding Dr Ralph W McAllester ——Dr Richard H Morris has been appointed a member of the board of health of Everett ——Dr Scott W Mooring has been elected a member of the board of health of Gloucester, succeeding Dr Charles H Morrow, retired after ten years' service ——Dr Howard A Streeter, Marblehead has been appointed district health officer in Berkshire District, succeeding Dr Stanley H Osborn, North Adams ——Dr William J Brickley for six years resident surgeon at the Haymarket Square Relief Hospital, Boston, has resigned to enter private practice ——Dr Henry S Rowen Brighton, has been appointed a trustee of the Boston City Hospital, succeeding the late Dr Francis J Keany

MICHIGAN

Effect of General Vaccination—The general vaccination order issued by the health commissioner of Escanaba a year ago resulted in entire freedom of the city from smallpox during 1916 Surrounding towns are said to have had many cases

State Board Asks Funds—The state board of health, in its annual report, asks for an increased appropriation owing to the expense of the new laboratory in the Upper Peninsula It recommends that the state be divided into districts, and that the counties should organize as units for tuberculosis work A special appropriation for tuberculosis is asked for, and the need for two state sanatoriums for the treatment of tuberculosis is emphasized

MINNESOTA

Hospital Opened—The Lake City Hospital was opened New Year's Day

Personal—At the annual meeting of the state board of health, Dr William A Jones, Minneapolis, was reelected president, Dr Christopher Graham, Rochester, vice president and the executive committee was also reappointed without change——Dr Harry M Guilford has been appointed commissioner of health of Minneapolis

New Sanatorium Opened—The sanatorium of the Southwestern Minnesota Tuberculosis Association, near Worthington, opened, January 14, cost $100,000 one half provided by the state and the other half by the counties of Rock, Pipestone, Lincoln Lyon, Murray, Nobles Jackson and Cottonwood The institution accommodates fifty patients

NEW YORK

Health Department Banquet—The tenth annual banquet of the health department of Buffalo was held, January 17 at the Hotel Statler The principal address was delivered by Dr William A. Evans, Chicago, on 'Health Insurance" Dr William G Bissell, Buffalo, was chairman of the committee of arrangements

Personal—Dr S Meredith Strong Flushing has been appointed president of the staff of the Flushing Hospital, succeeding Dr Charles B Story, Bayside——Dr Anthony F de Graffenried Bayside, has been elected secretary of the staff of the hospital, succeeding Dr George J. Lawrence, Flushing, who is on duty on the southern frontier——Dr James E. Mansfield has succeeded Dr Maurice J McGrath as local surgeon of the New York Central Lines, at Oswego ——Dr Barton D Skinner, Greenport, was struck on the head by a falling limb of a tree, January 4, and rendered unconscious

New York City

New Officers—Bronx County Medical Society, December 20 president, Dr J Lewis Amster, vice presidents, Drs John J Decker and Maximilian Ziegler, secretary, Dr Isidore J Lansman, and treasurer, Dr Philip A Eichler

Harvey Society Lecture—The next lecture of the present course will be given at the New York Academy of Medicine on the evening of February 3 by Prof James W Jobling, Vanderbilt University His subject will be 'The Influence of Nonspecific Substances on Infections"

Personal—Dr William S Stone has been appointed assistant director of cancer research in the Memorial Hospital ——Dr Simon Flexner has been elected foreign associate member of the Paris Academy of Medicine——Dr Henry Kendall has been appointed assistant visiting physician to the Sydenham Hospital

Annual Report of Academy—The report of the president of the New York Academy of Medicine shows that in the last twenty-five years the activities of the academy have increased five-fold, and that at present the library, reading room and journal room are greatly overtaxed Two solutions of this difficulty are discussed One is the sale of the present property and the erection of a new plant elsewhere, the other is the erection of an addition to the present building on the adjacent 25-foot lot running through from Forty-Third to Forty-Fourth Street and already in possession of the academy The second plan seems most practical and would probably provide abundant facilities for the next twenty years——The council reports the successful formation of a new section on historical medicine. The trustees report that during the past year the endowment fund has been increased by $1,600 and the general permanent fund by $100——The academy extension fund has received paid subscriptions amounting to $112,328——The committee on library reports the receipt of $100 from the First District Dental Society for the purchase of books and journals on dentistry——From Dec. 9, 1915, to Dec 10, 1916, there were added to the library 3,911 volumes and 3,372 pamphlets

NORTH DAKOTA

New Hospital for Minot—Articles of incorporation have been filed with the secretary of state by the Minot General Hospital Company with a capital stock of $200,000——John Maloney, Minot, has offered to donate 4 acres of land for a site on which to erect this hospital He also agrees to excavate the basement and to provide pure drinking water for the institution

Appropriation Asked for Health Laboratory—For the protection of the health of the people and to aid in the reduction of the death rate, the state public health laboratory has asked an appropriation of $12,000 from the legislature The main laboratory is situated at the University of North Dakota, Grand Forks, and there are three branches, one each at Fargo, Minot and Bismarck——The new quarters of the branch of the public health laboratory at Minot are in the Anderson Building, and the laboratory is in charge of Dr Albert M Larson

PENNSYLVANIA

New Officers—At the annual meeting and banquet of the Allegheny County Medical Society, held at Pittsburgh, January 9, the chief address was given by Dr William S O Neill Sherman of the United States Steel Corporation on the treatment of wounds in war Dr John M Thorne was elected president, Dr Ellis S Montgomery, vice president, Dr Carey J Vaux, secretary, and Dr William C Bryant, treasurer

Personal—Dr Jacob T Butz, for twelve years secretary of the Lehigh County Medical Society, was presented with a black alligator skin traveling bag and a traveling toilet set by the society——Dr Walter Lathrop has been reelected surgeon in chief and superintendent of the Hazelton State Hospital for the twentieth consecutive term——Dr. Charles E Hannon has been elected president of the staff of Mercy Hospital, Johnstown——Dr Lawrence A Sheridan, Wilkes-Barre has been elected president of the medical and surgical staff of Mercy Hospital——Dr Wilson H Rothermel Reading, who has been ill and confined to his house for seven weeks, has resumed his professional duties——Dr Harry J Kirby, Ellsworth, is reported to be critically ill in a Harrisburg hospital, the result of an automobile accident——Dr Eugene B Campbell, Williamsport is reported to be seriously ill——Dr Samuel S Shields, Carbondale, fell on an icy sidewalk, January 6, fracturing his left arm at the wrist

Philadelphia

Medical Club Election—The Medical Club of Philadelphia held its annual meeting, January 19, and elected Dr Charles K. Mills, president, Drs Gassaway O Ring and William Martin, vice presidents, Dr William S Wray, secretary, and Dr Lewis H Adler, treasurer

Symposium on Military Surgery—The program of the College of Physicians of Philadelphia for January 22 was devoted to "Military Surgery, Based on Experiences in the American Ambulance' Dr Fred T Murphy, St Louis, read a paper on "The Result of Operations on Bones", Dr Robert D Osgood, Boston, discussed the "Orthopedic Phases of Military Surgery", Dr Charles F Mitchell read a paper on 'Compound Fractures," and Dr Richard H Harte one on "Plastic Operations"

Personal—Dr William W Keen was the guest of honor at a dinner given by the faculty of Brown University at the University Club, Providence, R I, January 16——Dr W Wayne Babcock, chief of the surgical staff of the Samaritan Hospital, who underwent an operation for appendicitis, December 15, returned home convalescent, January 6——Dr R Tait McKenzie, who recently returned from England, delivered an address before the Los Angeles County Medical Society, December 29

TEXAS

Health Campaign in Polk County—To demonstrate the feasibility of preventing uncinariasis, typhoid fever, paratyphoid, malaria and pellagra, a four months' campaign has been commenced in east Texas under the direction of Dr Wesley C Becker, field director of the International Health Board of the Rockefeller Foundation. This board, with the cooperation of the state board of health, is financing this campaign

Personal—Dr Lee O Foster, Fort Worth, was run over by an automobile, December 23, and severely injured——State Health Officer William B Collins has returned from a tour of the principal ports of Central America and the West Indies——Dr Philip Douglas Spohn, Corpus Christi, has been appointed a surgeon in the hospital service of England and has left for his new post of duty——Dr Samuel E Thompson, medical director of the State Tuberculosis Sanatorium, Carlsbad has resigned——Dr Marcus M Carr, superintendent of the Parkland Hospital, Dallas, has resigned

CANADA

Prevalence of Syphilis—Dr Charles K Clarke, superintendent of the Toronto General Hospital, headed a deputation to Ottawa last week which appeared before the Canadian Conservation Commission and presented startling figures to that commission It stated that more than 12 per cent of the patients admitted to the public wards of the Toronto General Hospital for various diseases, medical and surgical, have syphilis Dr Clarke considers this a greater menace than tuberculosis Dr William Boldie asserted that Dominion control was necessary owing to the immigration laws being made by the Dominion Parliament Others who accompanied the delegation were Prof Benjamin P Watson, Prof John J Mackenzie Dr Charles H Hair, chief of the special treatment clinic at the Toronto General Hospital, and Dr Herbert K Detweiler all of Toronto

Hospital News—The Laval Hospital Unit is being established temporarily in Paris with 1 400 beds Its own building, which is now under construction will be ready in May——The Canadian Pacific Railway Company has agreed to transform six sleeping cars into hospital cars for the Canadian Military Hospitals Commission This will make a total of sixteen cars under the control of the commission These cars will be used between Winnipeg and the Pacific Coast, while the ten government cars will be used between Halifax and Winnipeg——The Canadian Hospitals Commission is advocating the sending of all military medical men in Canadian hospitals overseas filling their places by returned surgeons——A deputation headed by Sir Adam Beck came down to Toronto recently from London Ont to request the Ontario government to establish a hospital in London for returned soldiers It was suggested that a new building be erected on the grounds of the Hospital for Mental Diseases and that later on it could be utilized for hospital purposes for those afflicted with mental disease

Personal—Dr Melville H Embee has returned to Toronto from overseas on leave——Capt Alexander H Taylor medical officer Twenty-Fourth Battalion Victoria Rifles, has been awarded the Military Cross for conspicuous bravery——Dr H R Smith Toronto, medical officer, First King s Own Royal Lancasters was severely wounded in December and when last heard from was in the Rouen Hospital——Dr William A Macdonald Windsor Ont, has moved to Toronto, where he is attached to Exhibition Camp Base Hospital as an officer in the C A M C——Dr F R Nicolle (captain) Chatham Ont, contracted trench fever some months ago He has been in King's Hospital, London, England, since November——Dr Charles Stuart Wynne, sometime house physician at the Toronto General Hospital, his been awarded the Military Cross, 'for working all night dressing and attending the wounded in the open thereby saving many lives'——Capt Leeming A Carr Hamilton, son of Dr Leeming Carr has been awarded the Military Cross for continually leading stretcher bearers under heavy fire and on many occasions himself rescuing wounded men——Col Charles W F Gorrell, Ottawa formerly commanding officer, Taplow Hospital, resigned his position some time ago, and when last heard from was ill in a private hospital in London England——As a result of representations made to the British Embassy at Washington, Hon Dr Henri S Beland, formerly postmaster general of Canada, who was made a prisoner of war in Belgium early in the campaign will soon be liberated——Col Herbert A Bruce is not returning to Toronto at the present time He has accepted from the Royal Army Medical Service the appointment of surgeon in chief to twelve large British hospitals in France, and will likely remain at this post until the end of the war——Major John A Amyot, Toronto, formerly director of the Ontario Board of Health laboratories and professor of hygiene and public medicine in the University of Toronto, has been appointed sanitary adviser in England to the Canadian forces

GENERAL

Grayson Now Rear Admiral—January 18, President Wilson nominated as one of the five new rear admirals of the navy, two of whom are taken from the Medical Corps, Passed Asst Surg Cary T Grayson, naval aid and personal physician to the president This promotion advances Dr Grayson 114 numbers Dr Grayson, who was born Oct 11, 1878, in Virginia, was graduated from the University of the South Sewanee, Tenn, in 1903, and entered the navy June 28, 1904, as assistant surgeon He was promoted to passed assistant surgeon three years later, and had had up to the beginning of 1916 a little more than five years' sea service and more than six years' shore or other duty He was first assigned to duty at the White House during the administration of President Taft and was continued in that position by President Wilson when he assumed the presidency

American Academy of Public Health—At a meeting held in Cincinnati October 23, by twenty-nine physicians interested in public health matters, it was decided to establish an organization to be known as the American Academy of Public Health Qualifications for membership are to be based on achievements in public health work and scholarship in public health science The meetings of the organization will be devoted to the submitting of reports on public health problems and general discussion by the members According to the constitution adopted, the membership for the first year is limited to fifty and five new members may be added each year The following officers were elected pro tem president Carl L Alsberg, Washington, D C, vice president Prof H W Conn and secretary, Dr Charles E North 30 Church Street, New York

Bequests and Donations—The following bequests and donations have recently been announced

Servants for the Relief of Incurable Cancer New York $5 000 and St Mary s Hospital for Crippled Children $2 000 by the will of Mrs Eliza Haynes

St Vincent's Hospital New York $260 000 for a cancer hospital to be operated as a branch of the institution

Germantown (Philadelphia) Hospital a donation of $110 000 as a memorial for her daughters Mrs Charles W Harkness New York and Mrs Anna W Darnell by Mrs William C Warder Germantown

Dr Clarence P Foss Brunswick Me the entire estate of Mrs Susan York Brunswick valued at $20 000

Montefiore Home and Hospital, New York a donation of $100 000 by Jacob H Schiff

Hahnemann Hospital New York $72 494 by the will of Juliet C Percival

Mercy Hospital Chicago Mercy Orphan Asylum and St Charles Illinois, School Board the estate of Robert J Haynes valued at more than half a million dollars subject to the upholding by the court of the decision of Master in Chancery Hamlin

Massachusetts Homeopathic Hospital Boston $25 000 as a trust fund to be known as the Kate A Morrell Fund by the will of George Morrell

Universal Military Training—On December 27 letters were mailed to the presidents and to certain past presidents of the American Medical Association and of other national medical organizations of a special character and to the same officers of state societies inviting them to occupy the time at the hearing before the Senate Committee on Military Affairs which had been assigned to Dr Lucien Howe Buffalo, or to join in a letter to the chairman of the committee approving of universal military training Out of a total of 117 replies received previous to the hearing, 112, including presidents or past presidents of thirty-two state associations, gave their unqualified approval as indicated in the letter, four were doubtful or hesitated to commit themselves and one was opposed to the military aspects of the bill Several letters came too late to be presented At the hearing, Dr Howe made clear the positions of those who signed the letter to the committee, read abstracts from a number of the letters and presented them to the committee In presenting these letters, stress was laid on the fact that each signer expressed only his individual opinion, and not that of any organization with which he was then or had been associated The bill was advocated because of two provisions which would tend to improve the health of boys or young men These were first, a uniform and thorough examination of boys or young men such as would reveal any physical imperfections, and therefore lead to the adoption of means for their correction, and second, the gymnastic exercises and military training would tend to improvement of the general health Dr Hugh H Young, Baltimore, then presented to the committee other physicians who joined in the plea for universal training—beginning with simple exercises at home for boys of about 12, or if that plan were deemed impracticable by the committee, they advocated intensive military training for young men of about 18

FOREIGN

Extra Sugar for Infants in Berlin—A card is now issued in Berlin entitling infants under 1 year old to an extra half pound of sugar per month

Exchange of Medical Prisoners of War—The *Munchener medizinische Wochenschrift* states that Germany and Russia have come to an agreement respecting the exchange of physicians who have been taken prisoners in the war One physician is to be retained for each 2,500 war prisoners, and all the rest are to be allowed to return to their homes

Universal Patriotic Service—The German Reichstag recently passed a bill imposing universal patriotic service on every male German between the ages of 7 and 60 According to the new law, if one locality is overabundantly supplied with physicians, while another has too few, some of the physicians can be transferred The *Deutsche medizinische Wochenschrift*, commenting on the bill remarks that it is to be hoped that such measures will be enforced only in cooperation with medical organizations, and will not be carried out arbitrarily Physicians will probably be called on to report on the conditions of health of persons affected by the law Medical students can be called to care for the sick and wounded, and the time thus spent will be credited to them as those on active service now are being credited

Child Welfare Work—The Prussian minister of the interior has recently notified the provincial authorities (*Regierungspräsidenten*) to take active measures at once to train the older girls and the mothers in means to combat infant mortality, and in child welfare work of all kinds Besides courses of lectures on the care of infants and young children, public lectures mother s evenings and similar measures are to be inaugurated He urged that the woman s organizations the Red Cross and other benevolent associations endeavor to increase their efficiency He also suggested that health officers, communal physicians pediatrists and women physicians, teachers, ministers and others help, either personally or by providing lecturers In several communities, courses of lectures are being held for young girls and mothers who meet two or three evenings a week for this purpose and occasionally visit infant asylums and day nurseries for practical demonstrations The minister of the interior also urged distribution of pamphlets and circulars on the care of young children

Deaths in the Profession Abroad—The first woman physician in Switzerland in modern times and hence the first in Europe has recently died at Zurich Dr Marie Heim-Vogtlin aged 71 She had been practicing in Zurich since 1874 and had written a number of popular scientific works, especially on the care of infants——Bruns, professor of neurology at the University of Hannover and chief of the hospital for children's diseases, aged 58——P Herzberg of Berlin, aged 70 the pioneer in Germany for the movement in favor of cremation, long president of the Verein für Feuerbestattung ——J Benario long a co-worker with Ehrlich, aged 48—— E Hagenbach-Burckhardt, professor of diseases of children at the University of Basel, aged 76——Achille De Giovanni senator of the realm and director of the general medical clinic of the University of Padua Italy, aged 78 He was well known as a pathologist clinician biologist and philosopher, and had published works in these various lines especially on the relations between the morphology of the human body and the predisposition to disease .In the last few years he had taken a leading part in the attempt to control the spread of tuberculosis——E Gaupp, professor of anatomy at the University of Breslau, aged 56

Prophylaxis of Venereal Diseases in Prussia—The *Allgemeine medizinische Central-Zeitung* states that the various health insurance organizations of Prussia have established seventy free consulting dispensaries for sexual diseases A conference was held recently at the Berlin Central Office for Social Insurance which was attended by representatives of the various insurance organizations and of the larger medical associations Realizing that defective or unsuitable treatment of venereal diseases is a danger not only to the diseased themselves but also a menace to the general welfare, the conference unanimously voted in favor of continuing after the war, the measures enforced during the war, by the orders of the military commanders, against quackery in the treatment of venereal disease. The conference declared that these diseases can be successfully controlled only when quackery is legally excluded It should be illegal for any person, not a registered physician to treat sexual diseases in any way, regardless of the site of the disease Laws should also be passed prohibiting the dispensing of remedies against sexual diseases by drug stores and other establishments without a physician's prescription, and prohibiting the distribution of circulars and pamphlets which encourage self-treatment of sexual diseases even in veiled terms as testimonials, expressions of gratitude recommendations and advice All distant treatment of sexual diseases as well as every public offer to treat patients of this class should be absolutely prohibited

WAR NOTES

Contributions to British Red Cross—The *Times* Red Cross Fund which is being supported also by other newspapers passed the $30 000,000 mark, January 17

Italian Field Hospital Shelled—An official communication from Rome January 12 states that Austrian batteries shelled one of the field hospitals at Andrami in the Upper Cordevole, although it was visibly marked with a Red Cross

Relief Party Reaches Saloniki—A telegram from Saloniki January 11, states that twenty-eight Americans comprising Section Ten of the American Field Ambulance in France have arrived at Saloniki on their way to the French front in Macedonia to relieve another section which has been in service since October

The American Red Cross and European War Relief—The American Red Cross has issued a statement to the public showing what it has accomplished in European War Relief From Aug 6, 1914, to Sept 30, 1916, there were received contributions of $2 144,968 17 of which $2,007,584 62 was disbursed Of the money received $412 635 04 was designated and used for certain specific purposes Supplies valued at $978 309 54 were also donated during this period During the first months of the war the Military Relief Work of the Red Cross involved the sending of sixteen hospital units to the seven countries engaged in war at an expense of $352,000 It also joined with the Rockefeller Foundation to send a sanitary expedition to Serbia, which was then suffering from typhus fever The cost of this expedition was about $180 000 For Serbian relief a quantity of food supplies was shipped across the Roumanian border by way of Hungary to Belgrade In this way 318 carloads of food supplies were shipped up to the end of August Food supplies were sent into Serbia from the United States and Switzerland the approximate cost of this relief being $120,000 Red Cross representatives are now

RED CROSS RELIEF TO THE ALLIED POWERS

Countries	No of Shipments	No of Packages	Purchased Supplies	Donated Supplies Designated	Donated Supplies Undesignated	Total Value
Belgium	38	1,694	$ 34 590 17	$ 30 059 11	$ 13 101 65	$ 77 750 93
Belgium via Holland	6	507	19 971 10	16 993 40	4 800 00	41 764 50
England	44	2 676	51 332 45	34 544 55	44 733 65	130 610 65
France	78	12 028	123 720 48	241 583 77	79 860 35	445 164 60
Italy	26	655	16 141 32	16 754 55	14,992 70	47 888 57
Montenegro	6	372	2 708 15	9 950 00	6 852.60	19 510.75
Russia	32	2 740	50 392 43	34 931 85	39 548 50	124 872 78
Serbia	34	14 381	116 818.24	83 348 23	34 037 00	234 203 47
Total	264	35 053	$415 674 34	$468 165 46	$237 926 45	$1 121 766 25

TO THE CENTRAL POWERS

Countries	No of Shipments	No of Packages	Purchased Supplies	Donated Supplies Designated	Donated Supplies Undesignated	Total Value
Austria	14	1 891	$ 18 409 54	$ 58 153 55	$ 18 773 00	$ 95 336 09
Bulgaria	1	51	996 25		2 395 15	3 391 40
Germany	12	2 512	29 481 56	73 729 34	18 818 40	122 029 30
Turkey	3	309	7 025 86		7 463 96	14 489 82
Prisoners in South Africa and Siberia	23	6 123	20 538 64	92 884 23		113 422 87
Total	53	10 886	$ 76 451 85	$224 767 12	$ 47 450 51	$ 348 669 45

in Greece, ready with emergency relief funds and supplies for use in Serbia In conjunction with the Armenian and Syrian Relief Committee a cargo of food, clothing and medical supplies is on its way to Beirut, where it will be distributed jointly by local Red Cross chapters and the Turkish Red Crescent For many months a Red Cross Committee has provided relief for 5,000 refugees brought from Armenia to Egypt Working through Vladivostok, Tientsin and Peking, the American Red Cross has done much to help the thousands of prisoners of war and interned civilians in the interior of Siberia On the preceding page is a summary of the work of the American Red Cross from the outbreak of hostilities until Sept 30, 1916

LONDON LETTER

LONDON, Jan 1, 1917

The State and the Treatment of Venereal Diseases

A memorandum has just been issued by the Local Government Board to county and borough councils setting out the returns required to be made by the authorities of institutions approved by the board under the regulations for the diagnosis or treatment of venereal diseases The board has also prescribed a form of register to be kept by the pathologists of approved laboratories, and it has prepared for the consideration of hospitals and other institutions a suggested system of case papers and registers A number of leaflets have been prepared for use certain of them for the information of patients, and suggestions to local authorities for publicly announcing the facilities to be provided for treatment Incidentally, mention is made of the fact that at present the board has approved of kharsivan, arsenobillon and novarsenobillon as substitutes for salvarsan The board recommends that the necessary outfits for the collection of pathologic specimens should be supplied gratuitously to physicians, and it also suggests that a uniform payment of 72 cents per specimen should be made to cover out-of-pocket expenses in the transmission of specimens to laboratories

A large number of prominent women including the leading women physicians continue to advocate in the press compulsory notification of all persons infected with venereal disease, and they point out that compulsory notification exists in Denmark They say that it has never been found possible to protect the community from the ravages of infectious and contagious diseases by educative means alone, compulsion has always been necessary and has proved the best education So far the medical profession has opposed compulsory notification on the ground that it would lead to concealment and treatment by quacks, and the government has accepted this decision

Trinitrotoluene Poisoning

The manufacture of the high explosive trinitrotoluene on a large scale has led to the discovery that it may be dangerous to the workers So far there have been fifty fatal cases—a very small percentage when the number of workers is considered Absorption by the skin appears to be the chief channel by which the vapor becomes poisonous This absorption is shown by the characteristic yellow staining of the face and hair lasting for some weeks, to which munition workers handling the explosive are exposed A further stage in this discoloration is the advent of dermatitis, due to the direct irritant action of the poison Next in order of frequency come digestive troubles in varying degree and more seriously degenerative blood changes Worst of all, there is a direct destructive effect on the liver To the latter change is attributable the toxic jaundice from which the fatalities have ensued In other cases, the extent of the toxemia is manifested by 'the pallor of the face, and the ashen grey color of the lips" The fact has been elicited by the inquiry that some workers are susceptible to the poison and others not The latter are by far the larger class, and these apparently remain immune, even after long exposure to the poison On the other hand, any degree of susceptibility is a source of danger to a worker, for among these jaundice has been found to develop rapidly—within the limits of the fifth and sixteenth weeks of exposure Age, too, seems to be a factor of incidence of the symptoms, as in eight deaths out of eleven, due to jaundice, the sufferers were less than 18 years old In a matter of such national concern it was imperative to devise means for the protection of the workers, and strenuous efforts are being made to check the evil A scheme of preventive measures has been elaborated Only persons of sound health, between the ages of 20 and 50 are employed All the workers once a week are subjected to medical inspection Every fortnight they are removed from the trinitrotoluene zone for employment in other departments Means are resorted to for preventing the formation of trinitrotoluene dust, and for getting rid of fumes Absolute cleanliness of the face and hands before meals and before leaving the factory is insisted on, and plunge and shower baths are provided

The Color Bar at a London Hospital

Probably no civilized country is so free from racial prejudices as England, and it is only on the rarest occasions that a 'color line" is ever in evidence, as is illustrated by a recent advertisement in the *Lancet* of the Paddington Green Children's Hospital for house physician and surgeon The advertisement stated that "as this is a children's hospital, applications from Indian or Egyptian students cannot be entertained" This aroused protests in the columns of the *Lancet* from Indian physicians in this country One pointed out that he is resident medical officer at East London Hospital for Children and that the house physician there is an Indian, too At the same time he held that there is a prejudice against Indians Another sarcastically asked why the children's hospital is put forward as an excuse for excluding Indians Does it mean that Indians are objectionable to children and their mothers? He gives his own experience and that of other Indians which shows that this is not true He adds that the patients have far less prejudice against Indians than the heads of institutions This is no doubt true The London poor are quite without racial prejudices Several Indian physicians practice among them and are most popular Indeed, their race is in one way an advantage as people have the impression that they are possessed of some special skill denied to the ordinary Englishman This may be compared to the prejudice in favor of foreigners which exists in several directions Thus English musicians have found it an advantage to pose as foreigners

The National Institute of Mothercraft

A projected national institute of mothercraft is gradually progressing toward the final realization of an important and far-reaching scheme The committee includes leading pediatricians and medical women A site has not yet been found owing to the difficulty of getting a suitable one in a central position It is important that the institute should be easily accessible from all parts of London It is not intended to be a vast school for mothers, but to be the headquarters of all information and material for the training of students and workers concerned in the welfare of mothers and children On the ground floor will be a day nursery nursery schools for children of from 3 to 4 and 4 to 5 years, a school for mothers, and an infant clinic The first floor will be for administration purposes On the second floor will be the museum and exhibition, the reference and reading library the observation ward for resident babies and the students' training department The third floor will be devoted to laboratory and research work The aim of the originators of the institute is to make it, when it takes definite form, a place where every effective preventive agency shall be put into operation to combat infant, antenatal and maternal mortality All the scattered activities will be collected under one roof and every department will be organized by specialists and linked up in such a way that any provincial authority wishing to adopt, as best suited to its requirements, one branch of infant welfare will find at the institute a practical and complete model to draw on The institute is intended to be a memorial to those who have fallen in the war, and the Duchess of Marlborough is asking for $1,000,000 the provisional estimate of its cost

PARIS LETTER

PARIS, Dec 28 1916

Wounds of the Large Vessels Without Immediate Hemorrhage

This subject continues to command the attention of the Societe de chirurgie de Paris Dr Planson reported two cases of so-called 'dry" wounds of large vessels, that is, wounds not causing immediate hemorrhage (one case of complete division of the femoral artery and one case of almost complete division of the external carotid) following bullet wounds These two cases differ from those previously reported by Dr Pierre Duval and his collaborators (THE JOURNAL, Nov 25, 1916, p 1613) in the length of time (eight days) that elapsed between the receipt of the wound and the onset of the hemorrhage which led to the discovery of the wound *Although both patients recovered,* Planson again calls attention (agreeing with Duval and Sencert) to the danger of death to which these lesions expose the patient, and the necessity of a thorough systematic exploration of the vessels when the site and the direction of the wound have excited suspicion as to the nature of the lesion

Dr Potherat, surgeon at the hospitals of Paris, since the beginning of the war has frequently observed cases of these wounds—which he prefers to term "stanched wounds"—occurring on almost all the main trunks of the arteries He thinks that many arterial hemorrhages which have been classified as "septic secondary hemorrhages" were in reality arterial hemorrhages caused by trauma but retarded in occurrence by a stanching" or tamponing action How long after the trauma does the arterial wound reveal itself by hemorrhage? It is quite variable Several hours several days, even several weeks elapse Potherat has seen a subclavian artery wound bleed nine days after its receipt—an axillary artery wound after seventeen days—and the artery was almost totally divided How are we to explain these facts? The wound of the artery can be closed 1 By the projectile itself or a vestimentary fragment acting as a stopper The moment the plug is removed the hemorrhage begins 2 The edges of the torn artery and particularly the intima curl up into the lumen of the artery, a coagulum or clot is formed and stops the flow of blood, this clot disintegrates or becomes detached in the course of a dressing and hemorrhage ensues 3 The arterial wound could have produced a localized hemorrhage of little importance too slight to manifest itself externally but sufficient to produce a hematoma, which being compressed against the vessel by the adjacent tissues plugs the wound by compression, and delays the hemorrhage until such time as an inadvertent jar in the course of a dressing of the wound will detach this improvised tampon and hemorrhage occurs

To prevent accidents, sometimes fatal to which these "stanched" wounds of the arteries expose the patients, it is absolutely necessary to make a thorough examination of every case in which the course of the projectile gives cause to suspect a blood vessel wound, even though there is no clinical evidence of this wound If a vascular lesion is discovered, infinitesimal though it may be, immediate ligation of the artery on each side of the lesion should be done, *loco loeso*

Dr Routier observed a patient with a wound in the popliteal space fracture of the inferior extremity of the femur, and intermittent hemorrhages Amputation of the thigh at the middle had to be done on account of gangrene of the leg and foot Dissection of the anatomic specimen revealed a tear in the wall of that portion of the femoral artery lying in Hunter s canal this tear attaining half the caliber of the vessel It probably had been caused by a spicule of bone from the femur It is possible that the interruption of the hemorrhage was due to the artery catching on the point of the fragment, and that hemorrhage occurred at each displacement of the fragment

Dr Bazy some time ago observed a case of wound of the femoral artery caused by revolver shot, in which formidable hemorrhage did not occur until the third day after receipt of the wound This hemorrhage was easily stopped by compression and subsequent ligation of the vessel The patient recovered

Dr Pierre Duval reported a case of complete section of the internal jugular and common carotid by a shell explosion which was operated on successfully by Dr Fiolle

The War

ACUTE ENDOCARDITIS AND PERICARDITIS AMONG THE SOLDIERS AT THE FRONT

Among 1,719 soldiers treated during fourteen months in the contagious disease division of the military health service Drs Nobecourt and Peyre observed that thirty-four (1 97 per cent) were affected with endocarditis and pericarditis Various infectious processes were responsible for one case of mitral endocarditis and three cases of pericarditis Acute articular rheumatism was the cause of thirty of these cases of cardiopathy The mitral valve was always affected and frequently (in nine cases) also the aortic valve Pericarditis was present in nine patients and in five of these there was also an endocarditis Age has had a manifest influence on the frequency of cases of cardiopathy, 62 per cent of the cases occurred among men between 20 and 25 and 14 per cent occurred among men between 32 and 34 Among soldiers between 20 and 22 years of age, rheumatism resulted in cardiopathy in 40 per cent of the cases, between 23 and 30, in 25 per cent and among older men, in 13 per cent On an average of from five to six weeks after dismissal from the hospital these cases were checked up with the following results Out of seventeen cases of mitral endocarditis, eight gave normal sounds, nine showed some signs of mitral disease Among nine cases of aortic endocarditis, five gave normal sounds three gave harsh or clangorous sounds, and one showed the murmur of aortic insufficiency Often cardiomalacia existed Signs of pericarditis had disappeared in all cases In about half the cases, the patients seemed cured, the others still showed signs of endocarditis

UTILIZATION OF WOMEN'S SERVICES IN THE MANUFACTURE OF DENTAL SUPPLIES FOR THE MILITARY HEALTH SERVICE

Owing to the scarcity of male workmen and the necessity to provide prostheses as quickly as possible for soldiers accidentally edentated, the undersecretary of state of the military health service has drawn the attention of those in charge of this special phase of the service to the employment of women who have already rendered valuable aid in other departments It was possible to entrust to women, after a period of apprenticeship lasting from ten to twenty days many phases of the manufacture of prosthetic dental apparatus, such as the casting of plaster models and the making of dental modeling wax, registering teeth, filling casts, finishing and polishing From experience it may be affirmed that a dental laboratory worker, assisted by two well trained women, can double his output of apparatus

Necessity of Publishing the Composition of Pharmaceutical Specialties

Dr Tiffeneau associate professor at the Faculte de medecine de Paris, has drawn the attention of the Societe de medecine legale to the fact that most manufacturers fail to publish the qualitative and quantitative composition of their products The employment of these specialties constitutes a return to empiricism and, moreover, these products escape the control of the service for the repression of frauds After discussion the societe ruled that the composition of these products be declared to a service or bureau designated by the public authorities before they are placed on sale

Election of Two Foreign Associates to the Academy of Medicine

At a recent session the Academie de medecine elected two foreign associates Drs Francisco Durante, professor of clinical surgery at the Faculte de medecine de Rome, and Simon Flexner, of the Rockefeller Institute, New York

Personal

Dr Ferdinand Widal professor of internal pathology at the Faculte de medecine de Paris has been called to take the place of the late Professor Bouchard in the superior council of public instruction

Marriages

James Roy Freeland M D Pittsburgh, to Miss Katherine Palmer Moore of New York City, December 28

Sylvester Guy Pake, M D Superior Wis to Miss Rhea Janet McManus of Duluth, Minn December 19

Frederick Leonard McDaniel M D to Miss Sue McCloskey, both of Osawatomie, Kan, January 15

John Henry Traband, Jr, M D, to Miss Laura Adelaide Hempel, both of Baltimore, January 9

James Clyde Sargent M D, to Miss Mary Genevieve Cook, both of Minneapolis, January 3

William A Hall, M D, Prairie du Chien, Wis, to Miss Lydia Hulse of St Paul, January 4

Julius T Kane M D Jamaica N Y, to Miss Margery L Davis of Montreal, Que, January 6

Russell Arthur Jewitt, M D, Cleveland, to Miss Kate Freund of Chicago, January 16

Edward Estill Johnston, M D, to Miss Mary L White, both of Indianapolis, January 3

Dabney B Reinhart, M D, Merrill, Wis, to Miss Ann Toomey of Chicago, January 1

Harry Edgar Dees M D, Bicknell, Ind, to Miss Naomi Robertine Cox, January 11

William Joffee M D, to Miss Freda Abelson, both of Chicago January 14

Deaths

Charles Francis Withington, M D, Boston, Harvard Medical School, 1881, aged 64, a Fellow of the American Medical Association, and at one time a member of the committee on national legislation, president in 1914 and 1915 of the Massachusetts Medical Society, visiting physician to the Boston City Hospital and a member of the consulting staff of the Boston Insane Hospital, Choate Memorial Hospital, Woburn, Mass, and the New England Hospital for Women and Children, a member of the Association of American Physicians, formerly instructor in clinical medicine in his alma mater and later lecturer of medicine in the Graduate School of Medicine in Harvard University, for several years associate editor of the *Boston Medical and Surgical Journal,* died at his home, January 7, from heart disease

Charles Norman Ellinwood, M D, San Francisco, Rush Medical College, 1858, aged 80, a Fellow of the American Medical Association, formerly surgeon to the San Francisco City and County Hospital, president and professor of physiology and clinical surgery in Cooper Medical College, surgeon of the Seventy-Fourth Illinois Infantry, U S Volunteers, and surgeon major in the army during the Civil War, for many years a surgeon in the United States Marine Hospital Service and one of the organizers of the United States Public Health Service, a member of the board of regents of the University of California, and surgeon in chief to the San Francisco and German hospitals, died at his home, January 4, from senile debility

Chauncey D Palmer, M D, Cincinnati, Medical College of Ohio, Cincinnati, 1862, aged 77, a member of the Ohio State Medical Association, assistant surgeon at Camp Dennison, Ohio, from 1862 to 1865, professor of obstetrics and gynecology in his alma mater from 1869 to 1875, professor of gynecology and clinical gynecology from 1875 to 1906, and emeritus professor of obstetrics, gynecology and clinical gynecology since 1906, clinician in obstetrics and gynecology at the Cincinnati Hospital, from 1883 to 1906, consulting gynecologist to the Presbyterian and Good Samaritan hospitals, Cincinnati, contributor to many textbooks on obstetrics and gynecology, died at his home in Avondale, Cincinnati, January 10

Aaron J Steele, M D, St Louis, Jefferson Medical College, 1859, aged 81, formerly a Fellow of the American Medical Association, a member of the Missouri State Medical Association, and American Orthopedic Association, professor of orthopedic surgery in Washington University, orthopedic surgeon to the Missouri Baptist Sanitarium and consulting orthopedic surgeon to the Martha Parsons Children's Hospital, St Louis, a veteran of the Civil War, died at his home, January 7

John Arthur Cullum, M D, Regina, Sask, University of Toronto, Ont, 1905, L R C P, L R C S (Edin), L R F P & S (Glas), 1906, aged 38, captain in the Canadian Army Medical Corps, who on account of gallantry had been recommended for the Victoria Cross, and had been awarded the Military Cross and the *Croix de Guerre,* died November 10, from wounds received while on active service with the Canadian expeditionary force on the western war front in France

Pitt Yandell McCoy, M D, Evansville, Ind, Rush Medical College, 1863, aged 75, a Fellow of the American Medical Association, and a delegate from Kentucky to the Association at its meeting in St Louis in 1873, formerly professor of surgery in Evansville Medical College, president of the staff of St Mary's Hospital, and for thirty-five years division surgeon for the Louisville and Nashville System, died at his home, January 14, from heart disease

George Albert Ickes, M D, Altoona, Pa, Jefferson Medical College, 1886, aged 61 formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, for many years a member of the city council, and president of that body in 1901, at one time coroner of Perry County, died in the Altoona Hospital, January 9, from pneumonia superinduced by a fall, December 31

W Franklin Coleman, M D, Chicago, Queens University, Kingston, Ont, 1863, M R C S (Eng), 1870, aged 79, formerly a Fellow of the American Medical Association, one of the founders and president of, and professor of ophthalmology in the Post-Graduate Medical School of Chicago, well known as a specialist in diseases of the eye, ear, nose and throat, died in Hastings, Fla, January 22

Alfred Myers, M.D, York, Pa, Jefferson Medical College, 1875, aged 62, a member of the Medical Society of the State of Pennsylvania, postmaster of Hampton, Pa, during the administration of President Benjamin Harrison, died in his laboratory, January 5, from cerebral hemorrhage. The York County Medical Society held a special meeting, January 6, to take action on the death of Dr Myers

Eugene Boyd Campbell, M D, Williamsport, Pa, Jefferson Medical College, 1873, aged 66, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, for several years physisian to the Williamsport City Hospital, and for four years president and for four years secretary of the hospital board, died at his home, January 6

Albert A Seem, M D, Bangor, Pa, Jefferson Medical College, 1865, aged 73, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, surgeon of U S Volunteers during the Civil War, chief burgess of Bangor, a member of the borough council and school board and for several years president of the Bangor Trust Company, died in Los Angeles, January 5

Seth Louis Lloyd, Williamstown, Mass (license, Massachusetts years of practice, 1894), aged 51, for several terms a member of the board of selectmen and school committee of Williamstown and later a member of the board of commissioners of Berkshire County, superintendent of the Sand Springs Sanatorium, died at his home, January 7

Charles Richard Charteris, M D, Chatham, Ont., University of the Victoria College, Coburg, Ont, 1887, aged 51, a member of the Ontario Health Association, acting medical officer of health of Chatham and Chatham Township, past president of the Chatham Ont, public library board, died at his home, November 25, from angina pectoris

Henry August Kornemann, M D, Newark, N J, College of Physicians and Surgeons in the City of New York 1872, aged 83; a Fellow of the American Medical Association and a member of the American Public Health Association, for many years a member of the staff of the German Hospital, New York, died at his home, January 8

Stephen Olney, M D, Sioux Rapids, S D, Western Reserve University, Cleveland, 1868, aged 70, formerly a member of the South Dakota State Medical Association, a practitioner of Sioux Falls, from 1877 until his retirement in 1911, died at his apartment in the Hotel Kaiserhof, Sioux Falls, January 6, from acute dilatation of the heart

Harry Burdell Sanford, M D, Memphis, Tenn, Memphis (Tenn) Hospital Medical College, 1896, aged 40, formerly a member of the Tennessee State Medical Association, Mississippi Valley Medical Association and Tri-State Medical Association of Mississippi, Arkansas and Tennessee, died at his home, January 8, from tuberculosis

Clinton G Gray, M D, Ironton, Ohio, Miami Medical College, Cincinnati, 1871, aged 71, formerly a member of the Ohio State Medical Association, a veteran of the Civil War, for nineteen years proprietor of Gray Gables Sanatorium Hanging Rock, died in the Ohio State Hospital, Dayton January 4

Thomas B Taylor, M D, St Louis, Washington University, St Louis, 1876, aged 67, a member of the Missouri State Medical Association, formerly surgeon to the Mississippi River and Bonne Terre Railway at Festus, Mo, and coroner of Jefferson County, died in the Masonic Hospital, St Louis, January 9

Lester Elmer Peck, M D, Buchanan, Mich, University of Michigan, Homeopathic Medical School, Ann Arbor, 1894, aged 46, health officer for several years, a member of the village council for four years and president for three terms, died at his home, December 30, from carcinoma of the stomach

Henry Laning, M D, Chevy Chase, Md, Albany (N Y) Medical College, 1864, aged 73, who had spent the greater part of his life since 1873 in Osaka Japan, where he was for forty years head of St Barnabas Hospital, died at the home of his son in Chevy Chase, January 1, from cerebral hemorrhage

Frank Rattan, M D, Martinez, Calif., Cooper Medical College, San Francisco 1885, aged 59, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of California, died at his home, January 3

Ambrose Jones, M D, Delton, Wis, Rush Medical College, 1849, aged 96, a pioneer in telegraphy, who sent the first message between Milwaukee and Chicago on Jan 15 1848, assistant surgeon of the Fifth Wisconsin Volunteer Infantry during the Civil War, died at his home, January 11

James H Hedgpeth, M D, Rockport, Mo, College of Physicians and Surgeons, St Joseph, Mo, 1882, aged 61, for several years coroner of Atchison County, Mo and for eight years general manager of the Rockport Langdon and Northern Railroad, died at his home, about January 5

James Logan Brown, Pleasant Unity, Pa (license twenty years practice 1881, Westmoreland County Pa), aged 72 formerly a member of the Medical Society of the State of Pennsylvania and for forty-five years a practitioner of Pleasant Unity, died at his home January 13

John H Williams, M D, Summerfield Ohio Columbus (Ohio) Medical College 1885, aged 60 a member of the Ohio State Medical Association after a violent quarrel with his wife January 5 shot and killed her and afterward shot himself dying from his injuries January 6

Samuel Watson McConochie, M D, Hamilton Ont, Trinity Medical College Toronto 1883 L R C P (Lond) 1884, aged 60 died in the City Hospital Hamilton October 11 from the effects of an incised wound of the throat self inflicted it is believed with suicidal intent

Noble Theodore Jerman, M D, Holmesburg Philadelphia Hahnemann Medical College Philadelphia, 1873 aged 66 formerly a member of the school board and founder and president of the Holmesburg Improvement Association died at his home January 8

David Chancellor Boyce, M D, Pittsburgh University of Pennsylvania Philadelphia, 1892, aged 49, a Fellow of the American Medical Association, surgeon of the Northwest division of the Pennsylvania Lines, died at his home January 12 from pneumonia

James T Warren, M D, Sprague Mo, Washington University St Louis 1871 Jefferson Medical College 1882, aged 69 a pioneer practitioner of Bates County Mo died at the home of his daughter in Minneapolis Kan November 19 from arteriosclerosis

George Albert Steele, M D, Havana N D, Rush Medical College 1895, aged 44 formerly a Fellow of the American Medical Association local surgeon of the Great Northern System died on a train near Colorado Springs January 10 from tuberculosis

Thomas William Fingland Macknight, M D, Tamworth Ont Queens University Kingston Ont 1913 aged 29 a Canadian medical volunteer officer on duty with the Royal Army Medical Corps in India died in Bombay September 4 from pyrexia

Samuel Rideout Glover, M D, Midway Mills Va Medical College of Virginia Richmond 1907 aged 47 a member of the Medical Society of Virginia, died in the Stuart Circle Hospital, Richmond December 5 from pernicious malaria

Ellsworth Smith Adams, M D, Beverly N J Jefferson Medical College 1890 aged 42 formerly a member of the Medical Society of the State of New Jersey and mayor of Beverly, died at his home January 5 from heart disease

Hannibal Landon, M D, Remington Ind Starling Medical College Columbus Ohio 1865 Jefferson Medical College 1866, aged 75 for forty years a practitioner of Jasper County Ind died at his home, January 6 from asthma

Clarence M Kuykendal, M D, Rock Hill, S C, University of Maryland Baltimore 1890 aged 48 who retired from practice several years ago to take charge of the Kuykendal Drug Company died in Rock Hill, January 5

Louis Watson Raison, M D, Altoona Pa, Medical College of Ohio Cincinnati 1884, aged 63 for several years surgeon for the Baltimore and Ohio System at Foxburg, Pa died at his home January 5 from bronchopneumonia

Herbert Hallet Marsh, M D, Chillicothe Ohio, Ohio Medical University Columbus 1896 aged 46 formerly a Fellow of the American Medical Association died at his home, December 25 from pneumonia

Elmer A Clarke, M D, Los Angeles Homeopathic Hospital College, Cleveland 1878, aged 68 a member of the board of health of Los Angeles in 1909 died at his home, December 31 from pneumonia

Clinton E Sapp, M D, South Omaha, Neb Medical College of Ohio Cincinnati, 1875, aged 64, formerly a Fellow of the American Medical Association, died at his home October 11, from chronic nephritis

Wyman H Fisher, M D, Wanatah Ind, Northwestern University Medical School, Chicago, 1880, aged 72, for forty years a practitioner of Laporte County, Ind, died at his home, January 5, from nephritis

John Adams Winters, M D, LaCrosse, Wis, Bellevue Hospital Medical College, 1883 aged 60, was found dead from heart disease in his office in the State Bank Building LaCrosse, January 2

Thomas George Rainey, M D, Cleveland, University of Michigan Ann Arbor 1872 aged 71, died at his home December 20 from injuries received in an automobile accident in September last

Henry D Fulton, M D, Pittsburgh, Jefferson Medical College 1883 aged 57, a member of the Medical Society of the State of Pennsylvania, died at his home, December 27, from pneumonia

John Locke Hardeman, M D, Porterville Calif Washington University St Louis 1878 aged 61 a pioneer orange grower of the Porterville district died at his home, December 24 from valvular heart disease

John Patrick Moore, M D, Long Island City N Y, University of Vermont Burlington 1894, aged 50 died at his home in Astoria Long Island City October 24 from uremia

George A Anderton, M D, Greystone Park N J Baltimore Medical College 1907 aged 35 assistant physician at the Morris Plains (N J) State Hospital, died January 2

Granville W Traylor, M D, McCune, Kan, Kansas City (Mo) Medical College 1901, aged 39, a member of the Kansas Medical Society died at his home January 1

James Willard Avery, M D, Delaware Ohio Miami Medical College Cincinnati 1883 aged 58, died at the home of his sister in Delaware December 31, from carcinoma

Henry A Lounsbury, M D, Detroit, Detroit College of Medicine and Surgery, 1888 aged 53, died in the Receiving Hospital Detroit, December 29 from pneumonia

Oscar Jerome Shepardson, Chester Mass (license, Massachusetts years of practice 1894) aged 65 died in the Springfield Hospital November 24 from brain tumor

John W Koelle, M D, Jamestown Mo Homeopathic Medical College of Missouri St Louis 1896, aged 47, died at his home December 23 from pneumonia

Nathan F Canaday, M D, Hagerstown Ind Homeopathic Hospital College Cleveland 1870, aged 72 died at the home of his son in Newcastle Ind January 5

W F Rogers, Porterville Miss (license Mississippi) aged 62 a trustee of the Matty Herse Hospital, died at his home December 11 from pneumonia

James Harmer Rile, M D, Wilmington, Del Hahnemann Medical College, Philadelphia 1879, aged 59 died at his home January 2 from pneumonia

N Herbert Haight, M D, Sacramento Calif Hahnemann Medical College Chicago 1890 aged 53, died at his home December 29 from heart disease

George F Smith, M D, Carthage Mo, Louisville (Ky) Medical College, 1871 aged 68 died in Nevada, Mo, December 8 from cerebral hemorrhage

Amos Lewis Sweet, M D, Geneva N Y, New York University New York 1866, aged 73 died at the home of his son in New York, January 1

Joseph J Andzulatis, M D, New Britain Conn, College of Physicians and Surgeons, Baltimore 1894, aged 51, died at his home December 29

Peter S Weidman, M D, Edwardsville Ill Albany (N Y) Medical College 1855, aged 90 died in the Jacksonville State Hospital January 3

George W Irick, M D, Sheridan Ark Physio-Medical College of Indiana Indianapolis 1890 aged 66, died at his home, December 21

Bernard H Walker, M D, Norfolk, Va, Jefferson Medical College 1849, aged 91 died at the home of his son in Norfolk Va January 1

Erasmus D Hall, M D, Knowlesville, N Y, Castleton (Vt) Medical College 1853 aged 85, died at his home, December 9

George T West, Bancroft, Iowa (license years of practice Iowa 1866), aged 69, died at his home, December 11, from pleurisy

Robert Thomson, M D., Troy N Y, Albany (N Y) Medical College, 1871, aged 70 died at his home, December 24

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

NORTH CAROLINA TO THE FORE

The New Governor Backs Up the State Board of Health in Its Fight on Fraudulent Nostrums

Conservation of the public health and protection against the menace of the fraudulent "patent medicine" business bid fair to be accomplished facts in North Carolina The Board of Health of that state has for some time distinguished itself as being progressive in its attitude and aggressive in its methods The Old North State now has the additional advantage of having in its governor's chair a man who realizes how great an asset to the commonwealth is the health of the people Thomas Walter Bickett, a distinguished lawyer and the son of a country doctor, was, on Jan 11 1917 inducted into a four years' term as governor of North Carolina Governor Bickett in his inaugural address displayed a conception of the work of modern medicine that it as gratifying as it is encouraging His remarks relative to the State Board of Health and the efforts of the medical profession indicated an intimacy with the ideals of scientific medicine, preventive and curative Especially interesting were Governor Bickett's remarks on the problem of fraudulent nostrums To quote from a newspaper report of the address

> 'The State Board of Health deserves the unqualified support of the general assembly in its campaign against quacks and quackery The law requires a man to have a diploma from a first class medical college and to stand a rigid examination before the North Carolina Board of Medical Examiners before he is allowed to write a single prescription for a patient in North Carolina And yet we permit the sale of nostrums to our people without any adequate knowledge of whether or not they are injurious to health, or have any medicinal value whatever
>
> I am in favor of a law making it a felony for any man to sell offer for sale or advertise for sale in North Carolina any proprietary or patent medicine purporting to cure cancer consumption diabetes paralysis epilepsy Bright s disease, or any other disease for which the North Carolina Medical Association and the American Medical Association declare that no cure has been discovered
>
> I am earnestly in favor of a law requiring all vendors of proprietary medicine to file with the State Board of Health a statement showing the exact composition of such medicines and that the State Board be empowered to forbid the sale of such proprietary medicines in the state of North Carolina, if in its opinion it is without curative value in the treatment of the disease it purports to cure
>
> A bill is being prepared by our health department that will deal fully and adequately with this subject, and I give to this bill my most emphatic endorsement

A BAG OF FERTILIZER and A BOTTLE OF DOPE

One is for a plant	The other, for a child
One is required by law to print its ingredients on the package	The other is not required to disclose its ingredients
One can be used intelligently, in accordance with scientific knowledge regarding the effects of the substances on plants	The other cannot be used intelligently in accordance with scientific knowledge regarding the effects of the substances on human beings
One thrives upon openness and public intelligence	The other thrives upon secrecy and public ignorance
One defrauds with difficulty	The other defrauds with ease
For the one the Government, knowing its composition can furnish the comsumer exact information as to its effects	For the other, the Government not knowing its composition cannot furnish the consumer any statement regarding its effects

Is It Just and Right That the Farmer May Know What He Gives His Plants, and Unjust and Wrong to Allow the Parent to Know What He Gives His Child?

North Carolina in its January *Health Bulletin* presents the interesting parallel given above, between the requirements in that state for selling fertilizers and 'patent medicines respectively

Governor Bickett's statement that he favors a law that will permit the people of North Carolina to know what they are taking when they prescribe for themselves, is in line with the attitude already taken by the North Carolina State Board of Health That board devoted its January, 1917, *Health Bulletin* to a discussion of "The 'Patent Medicine' Business or, Accurately Speaking, The Secret Remedy Business" This twenty-four page pamphlet contains so much of interest that it should be put into the hands of every citizen of North Carolina[1] On the cover a parallel is drawn—we reproduce it on this page—between the North Carolina requirements for the sale, respectively, of fertilizers and "patent medicines" The Board of Health calls attention to the distinction between patented medicines and what are colloquially known as "patent medicines" It emphasizes the fact that a patented medicine is an open formula medicine, a product that is non-secret, while the "patent medicines" are almost invariably secret in composition and depend for their popularity on the mystery which this secrecy permits and encourages The work of the "Select Committee on Patent Medicines" in Great Britain is summarized and some interesting extracts from the committee's report are published in detail A chapter on "Tricks of the Trade" discusses such tricks as "The Story of Extraordinary Origin of an Ordinary Prescription," "The Aliases of Secret Remedy Venders," "The Cooperative Mailing List," "Blackmail in the Purchase of Abortion-Producing Remedies," and others

In discussing the problem of the responsibility of newspapers for some of the evils of the "patent medicine" business, the Board of Health emphasizes the fact that abolishing secrecy will result in protecting the press The chapter on the "Explanation of Public Confidence in the Secret Remedy" is thought-provoking and will give the layman some new viewpoints The psychology of advertising, the deep seated superstitions, especially of the ignorant, which are played on through the secret and therefore mysterious nostrum, the tendency of human nature to confuse a sequence of events with cause and effect and, finally, the physiologic action of the powerful drugs that are to be found in some nostrums are all discussed in explaining why secret remedies are used to such an enormous extent

In closing, the North Carolina State Board of Health calls attention to the fact that a law requiring the "patent medicine" manufacturer to put the names and quantities of the active ingredients of his product on the label will not spell the ruin that the 'patent medicine' fraternity has declared, unless, indeed, the products are worthless and fraudulent The *Health Bulletin* specifically mentions the case of the manufacturers of "Ayer's Sarsaparilla," etc, who for years have published a complete quantitative and qualitative formula on the labels of their products

If the bill which is being prepared by the North Carolina State Board of Health requires that all "patent medicines" sold in North Carolina shall bear on their labels the names and amounts of their active ingredients there will be an interesting fight The "patent medicine" interests may be counted on to oppose such a bill tooth and nail for reasons that we have repeatedly stated, viz, that the bulk of the "patent medicine" business is inherently fraudulent and cannot stand the light of publicity If such a bill finally passes, North Carolina will have achieved the notable distinction of being the first state in the Union adequately to protect its citizens against the fraudulent nostrum business New York City and the state of Louisiana have both attempted similar legislation, the former through its commissioner of health, the latter through the state board of health The New York ordinance while enacted more than a year ago, has been rendered practically inoperative by the legal fight made by the 'patent medicine" interests on it The ruling of the Louisiana Board of Health, apparently, never passed the academic stage

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[1] The Bulletin will be sent free to any citizen of the state on request Address Dr W S Rankin, Secretary State Board of Health Raleigh, N C

PIL CASCARA COMPOUND-ROBINS

Report of the Council on Pharmacy and Chemistry

A circular issued by the A H Robins Company of Richmond, Va contains the following statement

> PIL CASCARA COMPOUND-ROBINS is a rational therapeutic formula composed of CASCARA PODOPHYLLIN COLOCYNTH and HYOSCYAMUS which promotes a natural flow of secretions, which is, in turn the physiologic stimulant of peristalsis Thus a normal evacuation is produced without subsequent inhibition
>
> They contain no Mercury Strychnia nor Belladonna
>
> An ideal aid to any remedial agent when a Mild Medium or Strong alimentary timulant is needed [*sic*]
>
> Made in two strengths the dosage may be easily regulated so as to obtain the effects of an Anti Dyspeptic Aperient Laxative or Cathartic as desired They never cause discomfort unless given in larger dose than needed

This preparation is another example of the innumerable mixtures of well-known drugs having nothing in the way of originality or of special therapeutic value to recommend them

The advertising implies that this particular combination has a special action on the secretions of the gastro intestinal tract otherwise it would be hard to explain the claim that the preparation is antidyspeptic, if that means anything more than a laxative or cathartic

The claim is made that this preparation contains no belladonna—yet it admittedly contains hyoscyamus! This manifests either ignorance on the part of the manufacturers or an effort to impose on the medical profession Both belladonna and hyoscyamus contain variable amounts of similar alkaloids chiefly hyoscyamin Hyoscyamus is feebler than belladonna in its action as it contains less alkaloid The qualitative differences between the two drugs with reference to their use as laxatives is so slight as to make the company s claim for hyoscyamus appear either deliberately misleading or to be the result of crass ignorance Promoting this mixture of well-known laxatives and cathartics as an ideal aid to any remedial agent when a mild medium or strong alimentary stimulant is needed" is a slur on the intelligence of physicians

Pil Cascara Compound Robins is not acceptable for New and Nonofficial Remedies

Editorial Note—Advertisements of Pil Cascara Comp-Robins appeared in the following medical journals during 1916

American Journal of Surgery
Maryland Medical Journal
Charlotte Medical Journal
Medical Council
Southern Practitioner
Virginia Medical Semi Monthly
Texas Medical Journal
Medical Herald
Medical Brief

CASTA-FLORA

Report of the Council on Pharmacy and Chemistry

Casta-Flora is one of those complex preparations which are offered to the medical profession with plausible arguments in support of the claims made It is put out by the Wm S Merrell Chemical Co, Cincinnati Each fluidounce is said to represent

> Castanea fresh leaves 40 gr Passiflora fresh plant 40 gr Gelsemium green tincture 8 minims Inula represented by the camphoraceous stearoptene Helenin 20 grs Iodized Lime 8 gr Menthol 1 4 gr Aromatic Syrup Yerba Santa 60 minims

It is said to be

> A new combination of well tried remedies of especial value in pertussis and other spasmodic coughs It is composed of astringent antispasmodic sedative and expectorant agents that control the paroxysms relieve the irritation promote expectoration and give tone to mucous membranes involved

Still more exaggerated claims are made for the individual constituents of Casta-Flora partly by direct statement, partly by inference For example

> Castanea is almost a specific in whooping cough and other spasmodic coughs
>
> Passiflora is a narcotic, sedative and antispasmodic without habit forming properties nor does it lock up the secretions and upset digestion like opiates
>
> Inula (elecampane) has been employed as a cough remedy in England for centuries Its action is similar to guaiacol and creosote Its active principle, helenin is destructive of tubercle bacilli in dilutions of 1 to 10 000
>
> Iodized Lime Menthol and Yerba Santa are too well known as expectorants and antiseptics to require more than passing mention

That Casta-Flora is a new' combination may be admitted, it is improbable that exactly this combination of obsolete drugs was ever before selected for any purpose whatever, but the statement is misleading in that no new principle of therapeutics is involved On the contrary, the combination is just what might be expected from haphazard choosing of discarded and nearly forgotten drugs It seems incredible that a reputable firm of manufacturing pharmacists would make the positive statement that castanea is *almost* a specific in whooping cough Why not say it is a specific? It would be about as true A specific or 'almost specific" for this disease would rank among great medical discoveries, but castanea is merely a slightly astringent drug neither better nor worse than scores of other astringent drugs that have been tried found valueless and discarded

Hardly less surprising are the statements regarding passiflora This herb has been on the market about three quarters of a century Not only has it never established itself in scientific medicine but it is not even mentioned in modern standard works on therapeutics

Of all the statements made in the circular perhaps the most remarkable, in that it is so dangerously misleading, is that regarding helenin, the active principle of elecampane The statement that this principle (helenin) is destructive of tubercle bacilli in dilutions of 1-10,000 can only mean that it is of extraordinary value in the treatment of tuberculosis, in fact, it is definitely stated that the action of elecampane is similar to that of guaiacol and creosote

It is obvious that any drug which would destroy the tubercle bacilli in the human lungs without exerting a toxic action on the patient would be a great contribution to medicine But although elecampane may have been used for centuries it has proved to have little if any, merit and even the National Standard Dispensatory, p 848 says Elecampane was formerly employed as a tonic, stimulant, diuretic, diaphoretic expectorant and emmenagogue, but has now largely fallen into disuse One looks in vain in the standard textbooks on therapeutics for a description of the uses of inula (or elecampane) and of its so-called active principle, helenin

The circular to which reference has been made says, referring to the use of castanea and passiflora in the treatment of whooping cough

> Gelsemium when made from the fresh green plant—as is Merrell s—is an excellent adjuvant to the above drugs and allays the nervous irritability so frequently present

H C Wood Jr (Pharmacology and Therapeutics, 1916 p 160), says of gelsemium Gelsemium was originally employed as an arterial sedative and febrifuge in the malarial fevers of the South and subsequently in sthenic fevers It appears in some way to depress the bodily temperature, but it does not appear probable that any advantage to be derived from it will counterbalance the danger attending its employment in the large doses required In asthma spasmodic laryngitis, whooping cough, and nervous cough it has been recommended by Bartholow, but is little used '

That is about as favorable a statement for the drug as is to be found in the textbooks and it serves to illustrate how little new there is in this mixture of obsolete drugs that Merrell seeks to market as one possessing extraordinary therapeutic value

Even though the ingredients, or certain of them, were singly useful in the treatment of those conditions for which Casta-Flora is recommended no one could possibly foresee the effect in any given case of such a jumble of drugs, both active and inert, as is said to be represented in this preparation The prescribing of such mixtures, the action of which cannot in any way be foreseen is plain charlatanism

In addition, the various drugs in Casta-Flora are present in such proportions that the dose of each of the several ingredients bears no relation to the commonly accepted dose

Casta-Flora is not acceptable for New and Nonofficial Remedies

Editorial Note—Advertisements of "Casta-Flora" appeared in the following medical journals during 1916

Medical Record	*Lancet Clinic*
New York Medical Journal	*Medical Summary*

Correspondence

A Standard Size for Medical Books

To the Editor—I am writing to make a suggestion in regard to the size of medical books The first thing one notices on going into a lawyer's office is the uniform size of the books on his shelves The first thing one notices on going into a physician's office is the jumbled up appearance of his books, owing to the fact that nearly all of them are of different heights and widths I believe that the American Medical Association should take the lead and start a movement to have a standard established for the height and width of all medical books They should be of one height and width, but may be thick or thin as necessary This would give us a library which would make a decent appearance and would save our friends the bother of asking us, after looking at our books, whether we are moving in or moving out

John D Pollard, M D, Chicago

Yellow Petrolatum—Vesicorectal Reflex—The Treatment of Intestinal Stasis

To the Editor—To those who believe, as I do, that some form of lubrication of the large intestine is desirable in the treatment of autointoxication from intestinal stasis, let me recommend common yellow petrolatum in place of oil injections or of liquid petrolatum by the mouth From 1 to 4 heaping teaspoonfuls a day, by mouth, will generally produce soft or semiliquid stools without the least griping It is decidedly more efficacious than the liquid petrolatum, which frequently passes right by fecal masses without mixing with them or causing their expulsion, while the yellow petrolatum mixes thoroughly with the bowel contents and is never expelled by itself This also makes it a much more decent form of treatment than that by liquid petrolatum, which often causes a most disagreeable leakage The yellow petrolatum has somewhat of the latter advantage over the oil injections, to say nothing of what it saves in fuss and expense An oil enema is so elaborately disagreeable a function that I often wonder how many of the men who light-heartedly order their patients to inject half a pint of olive oil every night for a year or so have ever tried it themselves As to the expense, a 5 pound can of the yellow petrolatum retails for a dollar, and this will last from two to three times as long as a gallon of cottonseed oil, costing about twice as much, or if olive oil is used, from three and a half to four times as much The white petrolatum costs more than the yellow and is, I believe, less efficacious The yellow is practically tasteless, and if approached without prejudice is really a rather pleasant dose If so preferred, it can be taken in any hot liquid The dose necessary at first can generally be reduced by half after a week or so

Another aid in the treatment of constipation is the vesicorectal reflex Some years ago I noticed that if, perforce, micturition had to be postponed until the desire was acute, the bowel often would also move if the opportunity were given it, and by making systematic use of this reflex I was able, after having been a slave of the pill for twenty years, to go without any laxative whatever This reflex accounts for the efficacy of drinking a pint of water at bedtime The common supposition seems to be that some of the water passes clear through and irrigates the colon from above, but this seems highly improbable What the water does do is so to distend the bladder that the bowel is stimulated to unwonted activity I think the same reflex even without the water drinking at night is one of the factors in the normal morning movement of the bowels In practice, the best method of using it is to take 2 or 3 glassfuls of water at bedtime Then on arising, instead of urinating at once, wait until the desire is quite strong when, if the attempt is made, the bladder and the bowels can generally be emptied together So far as I can learn, physicians and physiologists have paid little or no attention to the vesicorectal reflex, but it certainly exists and can be utilized in the treatment of constipation, either by itself or in connection with other measures

Harold Gifford, M D, Omaha

Request for Report of Results of Percy Method in Treatment of Uterine Carcinoma

To the Editor—I am anxious to get reports from surgeons who have had experience with the Percy heat coagulation method in the treatment of inoperable uterine carcinoma I expect to report my results in the use of this technic before the section on Obstetrics, Gynecology and Abdominal Surgery at the New York session of the American Medical Association I shall be pleased to furnish blanks which cover the form of inquiry that I consider important in order to learn the true value of this treatment in uterine carcinoma I shall highly appreciate any information that may be given me along the lines of this investigation

J F Percy, M D, 147 South Cherry Street, Galesburg, Ill

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted on request

THE RELIEF OF CONSTIPATION

To the Editor—In Queries and Minor Notes, please enlighten me on the following questions

1 What is the best laxative to be taken continually by tuberculous patients who are confined most of the time in bed, when proper dieting does not seem to give a satisfactory evacuation each day?

2 Is it not better to give a laxative to most tuberculous bed patients as a routine than to run the risk of toxic symptoms of constipation and the chance of rectal troubles as hemorrhoids fissures and fistulas which are common in this class of patients and which, when acquired are hard to get rid of?

3 What is the best laxative in these cases? And should one be given continuously or alternated as for example agar for a while and then liquid petrolatum?

4 I notice that some brands of liquid petrolatum retail for about half the price of others Is there any difference in quality as to effect?

5 Are any pathologic changes produced from the continuous use of liquid petrolatum for months or years?

Kindly omit name and address T R P

Answer—1 There is no "best laxative" to be taken in general by patients with any certain disease Laxatives, like other drugs, should be given to suit the particular condition of the individual patient

2 It is impossible to answer such a general question Again it may be stated that patients must be individualized and not treated by rule

3 See answers to 1 and 2

4 There are differences between various brands of liquid petrolatum The price does not indicate the quality A brand complying with U S P standards for liquid petrolatum should be used

5 So far as known, no pathologic changes resulting from the use of liquid petrolatum have been described

In general it may be said that the aim should be, even with a tuberculous bed patient, unless it is a hopeless case, to relieve constipation by remedial agents other than drugs Diet is here all important Cooked and raw fruits, coarse cereals, vegetables, nuts, cream, butter, oil, bran bread, etc, may be of service Persistence in regulative diet, with attention to details, is imperative Enemas, such as the oil enema at night, may be helpful Massage may be beneficial

The objection to giving a laxative continually is that it induces a habit This is of course not comparable in its harmful effects to the morphin or cocain habit but its ultimate result is apt to be the depriving of the intestine of its power of independent action, the bowels unless urged become more and more sluggish and the dose must be increased Besides there often results an irritable and inflamed intestinal mucosa, the cause of occasional looseness of the bowels mucus in the stools, abdominal pain—a 'cathartic ileocolitis" This really causes much suffering is provocative of many nervous disturbances and may even simulate and be treated for such conditions as appendicitis

So to repeat, we should advise our correspondent to try by every means not to use a laxative even a best laxative as a routine measure The relief from the habit of constipation is at the expense of a new habit, that of cathartics with its attendant irritated bowel

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EFFECT ON ETHER AND CHLOROFORM OF EXPOSURE TO THE AIR

To the Editor —1 Please tell me if ether is rendered unfit for anesthesia if it is allowed to remain in an open can for some time Does it undergo any chemical change when exposed to the air?

2 Please give me the same information about chloroform

C Mayfield M D *Hutchinson Kan*

Answer—1 Yes The U S Pharmacopeia requires that ether be preserved in partially filled, well closed containers in a cool place remote from fire and protected from daylight The U S Pharmacopeia further cautions that when ether is to be used for anesthesia it is to be dispensed only in small, well closed containers and is not to be used for this purpose if the container has been opened longer than twenty-four hours Ether is slowly oxidized by the action of air moisture and sunlight with the formation of peroxids

2 The U S Pharmacopeia requires that chloroform be preserved in well stoppered bottles in a cool place, protected from light Chloroform which contains alcohol as a preservative is not readily decomposed by exposure to air Worth Hale (Variations in the Toxicity of Chloroform for Anesthesia Annual Reports of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry 1915 p 112) studied the toxicity of four commercial brands of anesthetic chloroform and one sample of anesthetic chloroform which had been standing in the laboratory exposed to the light for at least two years in a half filled white glass bottle He did not discover any marked difference in the toxicity of the five specimens of chloroform examined

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LAFAYETTE MIXTURE

To the Editor —What is the composition of Lafayette s mixture used on the border for the treatment of gonorrhea A soldier back from the Texan border showed me the prescription

E C Cary M D Reedsville Wis

Answer —Lafayette mixture is the alkaline copaiba mixture which had considerable vogue about thirty years ago when gonorrhea was treated in a haphazard way It has been characterized recently by pharmaceutic authorities as disagreeable, irrational and usually inefficient The formula is still to be found in the National Formulary under 'Mistura Copaibae' with Lafayette mixture as a synonym The formula is

Copaiba	125 c c
Spirit of nitrous ether	125 c c
Compound tincture of lavender	125 c c
Solution of potassium hydroxid	32 c c
Syrup	300 c c
Mucilage of acacia a sufficient quantity to make	1 000 c c

ACTION OF STRYCHNIN ON BLOOD PRESSURE

To the Editor —What influence if any does strychnin exert on blood pressure?

L W Wright M D Williamsport Pa

Answer —Strychnin in therapeutic doses causes a rise in blood pressure This is principally due to stimulation of the vasomotor centers but in part to the increase in tone of the skeletal muscles Strychnin has *little or no action directly* on the heart and the pulse rate is if anything slowed In quantities large enough to cause convulsions, the rise of blood pressure during the latter is enormous Experiments on animals show that this rise is not entirely due to the convulsion itself, but in part to the effect on the vasomotor center It is rapidly followed by a fall of pressure from overstimulation and fatigue

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Illinois Chicago Feb 21 23 Sec Dr C St Clair Drake Capitol Bldg Springfield

Iowa Des Moines Feb 6 8 Sec Dr G H Sumner Capitol Bldg Des Moines

Kansas Topeka Feb 13 Sec Dr H A Dykes Lebanon

New York New York City Albany Syracuse and Buffalo Jan 29 Feb 2 Chief Examinations Division H H Horner University of the State of New York Albany N Y

Vermont Montpelier Feb 13 Sec Dr W Scott Nay Underhill

Connecticut July Report

Dr Charles A Tuttle secretary of the Connecticut Medical Examining Board reports the practical and written examination held at New Haven July 11-12, 1916 The total number of subjects examined in was 7 total number of questions asked 70 percentage required to pass 75 The total number of candidates examined was 24 of whom 12 passed and 12 failed The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Yale University	(1916)	82 9 83 9 85 4
Bowdoin Medical School	(1913)	79 9
University of Maryland	(1916)	75 6
Harvard University	(1915)	86
Columbia Univ Coll of Phys and Surgs	(1913) 78 8 (1915)	92 7
Fordham University	(1913)	76 4
Jefferson Medical College	(1916)	77
McGill University	(1914)	77 6
University of Budapest	(1898)	78 6*
FAILED		
Yale University	(1915)	76 4†
Eastern University‡	(1913)	58 5
Johns Hopkins University	(1909)	75 8†
Maryland Medical College	(1913)	56 4
University of Maryland	(1916)	71
College of Physicians and Surgeons Boston	(1912)	67 5
Harvard University	(1916)	77 5†
Columbia University College of Phys and Surgs	(1915) 73 6	74 5
Long Island College Hospital	(1916)	68 5
Jefferson Medical College	(1912)	65 7
University of Vermont	(1910)	71 5

* Graduation not verified

† Fell below the required average in one subject

‡ This college was officially reported as not recognized by the Maryland State Board of Medical Examiners

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Connecticut Homeopathic November Report

Dr Edwin C M Hall secretary of the Connecticut Homeopathic Medical Examining Board reports that the two following candidates were licensed on presentation of satisfactory credentials Nov 14 1916

College	Year Grad
Atlantic Medical College	(1910)
New York Homeo Med Coll and Flower Hosp	(1915)

Nevada November Report

Dr S L Lee secretary of the Nevada State Board of Medical Examiners reports the written examination held at Carson City Nov 6 8 1916 The total number of subjects examined in was 13, total number of questions asked 100, percentage required to pass 75 The total number of candidates examined was 6 all of whom passed Eleven candidates were licensed through reciprocity One candidate was granted a reregistration license by examination The following colleges were represented

College	Year Grad	Per Cent
PASSED		
College of Medical Evangelists	(1916)	83 8
Hahnemann Med Coll of the Pacific San Francisco	(1916)	85 6
Leland Stanford Junior University	(1915)	88 6
College of Phys and Surgs in the City of New York	*(1888)*	*85 9*
Cornell University	(1903)	90 8
McGill University	(1896)	86 7

College	Year Grad	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Chicago College of Medicine and Surgery	(1914)	Illinois
Rush Medical College	(1915)	Utah
Kansas City Medical College	(1900)	Missouri
St Louis University (1911) Illinois	(1913)	Utah
John A Creighton Medical College	(1912)	Nebraska
Lincoln Medical College	(1909)	Nebraska
Medical College of Ohio	(1909)	Utah
Jefferson Medical College of Philadelphia	(1908)	Penna
University of Pennsylvania	(1898)	Penna
College of Physicians and Surgeons Dallas	(1905)	Oklahoma

Social Medicine, Medical Economics and Miscellany

COMBATING VENEREAL DISEASES

A report on venereal disease (*Munchener medizinische Wochenschrift,* 1916, **63,** 1691) has just been issued by a special committee appointed by the Munich Aerztliche Verein, a medical association, to study questions affecting the preservation and promotion of racial vigor (*Volkskraft*). Venereal diseases, it states, are "next to alcohol and tuberculosis the most dangerous enemies of the human race. The knowledge of this seems to be gradually making its way into wider circles. There is now hope that the importance of this hitherto much neglected field will gradually come to be appreciated. The time has arrived for rousing the community to more energetic measures. It is self-evident that with diseases which are so amenable to treatment as the venereal diseases, everything depends on getting all the persons affected to take thorough treatment. With this, and only with this, is it possible to restrict the spread of these plagues, the prevalence of which is suspected only by the few.

It is a known fact that, at present, persons with venereal diseases in the overwhelming majority of cases get inadequate treatment. This, experience has shown, is due less to the fact that they do not seek medical aid as that they think they are cured as soon as the acute manifestations have subsided. They think that they are cured, or at least they do not regard it as worth while to take further treatment. Syphilitics seldom find it convenient to repeat the course of treatment necessary for a cure unless unmistakable recurrence of the manifestations drives them to a physician. For these reasons the Aerztliche Verein of Munich advocates in the most forcible manner legislative measures to insure that persons affected with venereal diseases get treatment and, especially, that they are kept under treatment and under medical control until they are cured and no longer a menace to others. The carrying through of adequate treatment seems impossible, however, so long as it is optional for the heedless, the unreasonable or the indifferent to let themselves be treated or not. It is therefore essential that the authorities should be empowered to compel those with venereal disease to take proper and adequate treatment. As a logical corollary, the authorities must know what persons they are to compel to take treatment. Compulsory treatment therefore presupposes compulsory notification.

LEGISLATION ADVOCATED

"The Munich Aerztliche Verein therefore advocates legislative provision for compulsory notification and compulsory treatment of venereal diseases. The association does this only after mature deliberation and weighing of all the reasons for and against such a measure. It is well aware that this conflicts with widespread and apparently well founded considerations. But examination of the latter more closely shows that they cannot be regarded as unimpeachable. The chief objection is that compulsory notification would prevent those affected from seeking the aid of a physician. They would either apply to quacks or let their disease go untreated. That the latter would not occur is guaranteed by the pains and fear of the disease, which would be more and more effectual the more the public is enlightened on the subject of venereal diseases. Even now nearly all affected apply for treatment so long as there are appreciable manifestations of the disease. The quacks could be prohibited from treating venereal disease, as the military authorities have now enforced, or, if this proves impracticable, they would have to conform to the regulations in regard to compulsory notification. With energetic measures on the part of the authorities any failure to comply with the regulations would be a difficult and expensive matter. Of course any physicians failing to comply with the regulations would also be liable to penalty.

"The objection that regulations of this kind would encounter invincible opposition on the part of the people seems to be unfounded. Wide and influential circles are of the same mind as our association in this matter, as has been ascertained by written and verbal communications from various quarters. To assume that the medical profession would not do this service for the public welfare is to discredit our profession. It is a favorable circumstance that, just at present, in the consulting dispensaries for venereal diseases which have been organized recently under the auspices of the insurance societies (Landesversicherungsanstalten) throughout the entire empire, we have an arrangement along the same lines. Unfortunately, they are dependent on and subject to the good will of those affected. They have no means of compulsion, and consequently they only half fulfil their purpose. The fact that these consulting dispensaries have received such a welcome everywhere is a sign that the current is flowing in our direction.

"Of course the introduction of compulsory notification and compulsory treatment is an innovation and an experiment, for everything that has been done in this line in other lands has been only half measures. But unless experiments are made, there can be no progress."

REGULATION FOR COMPULSORY NOTIFICATION

The report then outlines the principles on which the regulations for compulsory notification and compulsory treatment should be based. It calls for notification of gonorrhea of the urinary and sexual organs, conjunctiva and rectal mucosa, for ulcus molle, and for syphilis in the first or second phase and in the tertiary phase when the skin, organs of locomotion, visible mucosa, organs of sense or central nervous system are affected, and for congenital syphilis, notification of change of residence, and notification of patients in hospitals. Notification is imperative even when the patient has applied to the physician for some other ailment. The notification must be in writing on a printed form, free of postage, with details as to whether and where treatment has been applied and whether the patient refuses. Notification is also to be required when treatment is concluded, also on a printed form, specifying whether and when the patient is to be examined or treated again. Notification is also required when the patient stops taking treatment prematurely. An official physician should be deputed to examine those who apply the first time. A special board should have charge of the lists of patients and all the data as to past, present and further treatment. This board should be empowered to warn and compel the patient to submit to treatment, committing him to a hospital for the purpose if necessary. Other members of the family or persons with whom those affected have had sexual intercourse are to be examined and treated, unless injury otherwise is to be feared. The notifying or treating physician can specify when he thinks institutional treatment is necessary on account either of living conditions, carelessness, the profession, refusal to submit to treatment, or the severity of the case. Persons not under the care of any physician can be compelled to submit to examination and to treatment if required. The army and navy authorities should also notify the civil authorities when those requiring treatment pass into civilian conditions. Treatment of venereal diseases by others than registered physicians should be forbidden, as also the sale of means of treatment. Druggists should be allowed to dispense such remedies only on a physician's prescription and only in the prescribed amounts and not repeat. Arrangements should be provided for sufficient treatment for all with venereal disease. The poor should be treated free unless otherwise provided for by the social or life insurance, etc. All physicians, officials and others engaged in the work should be held to strict secrecy in regard to the cases of venereal disease of which they learn in their official capacity. No outsider should be allowed access to the records. Especial care as to secrecy should be maintained in recording the data. The notice, with name, birthplace and birthday and the filled out forms are to be sent to the local board in the patient's birthplace, which is to preserve and record the data.

The report outlines also a set of regulations for the police similar to those in vogue for acute contagious diseases. It specifies that the notification must record the entire name, sex, birthplace and birthday, whether single, married, divorced or widow or widower, the name of the venereal disease, site, kind, stage and previous duration, the time and source of infection, even if only surmised, details as to previous treatment and by whom, with place and date of the notification, and full name and address of the one making it The patient must be informed of the necessity for notification, but told that the data are to be held secret The patient is to be warned against marrying so long as the disease is contagious and, if marriage is contracted, concealing the presence of venereal disease, the marriage can be annulled under certain circumstances and damages claimed

The expense of treatment is to be borne by the patient unless provided for by official, insurance, or charitable appropriations A fine of 90 marks (about $22 50) or a four weeks' prison term are suggested as penalties for failure to comply with the regulations

THE WOCHENSCHRIFT COMMENTS

In the same issue of the *Munchener medizinische Wochenschrift* with the above appears a comment on the way in which questions affecting the future welfare of the race have been forced into prominence by the war It is stated editorially

The full importance of this was realized before the war only by a small number of far-seeing men but the war by revealing the dangers threatening the race from the declining birth rate, has demonstrated to the widest circles the necessity for energetic measures to combat the causes of the decline in the birth rate Associations have been formed at various points to study the questions involved In this same issue of the *Wochenschrift* are reports of the meetings of three organizations of the kind, two of national scope The resolutions voted for the combating of venereal diseases are surprising for those who know with what timidity this problem has been approached in the past Even the National Prevention Society, the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten, goes so far as to demand that the venereal diseases be included in the regulations regarding epidemic diseases the *Seuchengesetz* and asks for a limited notification The Munich committee is even more radical in its demands, drawing the ultimate conclusions from the conception of sexual diseases as evils menacing the public health, and hence requiring compulsory notification and compulsory treatment The conclusions formulated by the committee are worthy of all attention not only because they are clear and logical and have been worked up equally well from the medical and the juristic sides, but because they represent a courageous act thus to break decisively with old traditions For reserves and attacks will soon follow, and not the least, we fear, will come from the ranks of physicians Even the comments that have been heard already on the 'consulting dispensaries' for venereal diseases that have been organized throughout the country by the insurance societies the Landesversicherungsanstalten, show that in medical circles any infringement on the principle of medical secrecy is felt deeply The official organ of the Medical Chambers, the *Aerztliches Vereinsblatt* has already declared that the suggestion of compulsory notification of venereal diseases would be the most momentous legislative aberration that it is possible to conceive (*verhangnisvollste gesetzgeberische Verirrung*) The still more far-reaching conclusions of the Munich committee will arouse a storm of protests And yet there can be no doubt that finally the medical profession will acquiesce in some restriction of the conception of medical secrecy in the matter of venereal diseases as has long been the rule with certain contagious diseases The principle of compulsory notification and compulsory treatment has proved its usefulness with other contagious disease It is impossible to understand why for the sexual diseases alone we should renounce this principle just on account of tender solicitude for the false shame of those affected The sexual diseases are among the worst scourges of humanity It is our imperious duty to restrict their devastating action on the strength of the nation (*Volkskraft*) Compulsory notification and compulsory treatment are the only measures which promise effectual results, so they must be introduced even trampling down deep-rooted and otherwise justified ethical considerations The supreme law which has facilitated so many decisions in the course of the war must prevail here also *Salus rei publicae* 'health is a public matter'"

Medicolegal

Liability Where Two Physicians are Employed—Minimizing Damages

(Stokes vs Long (Mont), 159 Pac R 28)

The Supreme Court of Montana affirms a judgment in favor of the plaintiff for alleged malpractice in the reduction and treatment of a broken leg The court says that the plaintiff sent his wife to engage the defendant's services, and the defendant told her that he would need assistance, suggesting that he secure the services of a Dr Wallin, to which she agreed There was much conflict in the evidence as to the course of treatment pursued According to the plaintiff, his wife, and other lay witnesses, the leg was inclosed in a plaster cast without any opening A weight of 4¾ pounds was attached to the foot by means of a cord held by strips of surgeon's plaster adhering to the leg No means were employed such as the elevation of the foot of the bed, to prevent the body from slipping down in the bed, as it yielded to the pull of the weight No examinations were made by means of the Roentgen-ray process, nor were the usual necessary superficial measurements made from day to day No examination could be made by manipulation because the cast prevented The court thinks the evidence made a prima facie case for the jury as to whether ordinary care and skill had been exercised in selecting the means employed to produce a proper union On the other hand, if the testimony of the defendant and Dr Wallin were to be accepted as true, the plaintiff had no case, for, as detailed by them, the course pursued was in every particular beyond criticism Yet, even so the evidence as a whole presented a question as to whether, in view of the result, their testimony was true, and this question was exclusively for the jury

It was contended, furthermore, that Dr Wallin reduced the fracture and chose the mechanical appliances which were used that the defendant only administered the anesthetic, and five days later left for Florida, without having taken any part in the treatment of the injury In other words, the contention was that, since the defendant was authorized by the plaintiff to employ Dr Wallin, and he performed the operation of reduction and thereafter treated the plaintiff exclusively, Dr Wallin's employment constituted an independent contract under which he became solely responsible to the plaintiff If the evidence were in the condition which counsel asserted, their conclusion would undoubtedly be correct If one physician, on leaving temporarily the community in which he is engaged in practice, recommends to his patients the employment, in case of need, of some other physician who is not in any sense in his employment or associated with him as a copartner, he is not liable for injuries resulting from negligence or want of skill in the latter, in case he is employed In such case the employment of the latter is under an independent contract, and he is solely responsible for the result It is held also that when two physicians are employed in the same case and by agreement divide the service as their best judgment may dictate, they are considered as independent agents, each being responsible for his own negligence and no more If, however, one observes and lets go on without objection wrongful acts and omissions by the other, or if the circumstances are such that he ought to have observed such wrongful acts or omissions, he is liable Each is bound to bring to the case the ordinary knowledge and skill of the profession, and also to give his best personal attention and care If one is guilty of want of ordinary professional care and skill in choosing the mode of treatment adopted, and the other expressly or impliedly gives his approval, there is no reason apparent why the latter should not be held guilty also, for by his acquiescence he fails to give the care and attention his employment requires However, the court thinks the evidence in this case did not justify the position of counsel, but justified the conclusion that the defendant considered the case his own until he left, and that both physicians were to be deemed responsible for the result, there being evidence that the treatment was vicious from the start, as "Buck's extension" or other adequate appliance was not used

In order to minimize the injurious consequences of a bodily injury suffered through the fault of another, one is not necessarily bound to submit to a major surgical operation which may or may not result in a betterment of his condition, but, if he chooses to do so he may show what would be the cost of an operation which would minimize the suffering due to his condition at the time of the trial, though he cannot recover for both future pain and the cost of obtaining relief from it

Contract of Hospital to Care for Infant Received Along With Mother

(Roche v St Johns Riverside Hospital (N Y) 160 N Y Supp 401)

The Supreme Court of New York, Special Term Westchester County, holds that it is within the power of a hospital to contract to receive an infant along with its mother and to exercise over it careful supervision and watchfulness in order that it may not suffer harm while the mother is undergoing a course of treatment and that an action may be maintained by the administrator of the estate of the infant when its death is caused by a breach of such contract as when its head is permitted to come into contact with a steam pipe and to remain so long that its death is caused by the burn The court thinks that it has authority for holding this to be true even if the hospital be a charitable institution

Society Proceedings

COMING MEETINGS

Congress on Medical Education Public Health and Medical Licensure Congress Hotel, Chicago Feb 5 6
Western Roentgen Society Hotel Sherman Chicago Feb 16 17

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty Ninth Annual Meeting held at White Sulphur Springs W Va Dec 11 13 1916

(Concluded from page 22[illegible])

Transplantation of the Ureter Following Traumatism and Resection of the Bladder for Cancer

Dr E Starr Judd, Rochester Minn The indications for ureterocystostomy are threefold (1) injury to the ureter during hysterectomy usually for an advanced carcinoma of the cervix, (2) traumatism of the ureter during difficult instrumental labors and (3) resection of the bladder for cancer located about the ureteral orifice Intravesical transplantation of the ureter can be performed and the function of the kidney maintained It is entirely feasible and altogether the procedure of choice in cases of ureteral fistula, and is much to be preferred to sacrificing the kidney

DISCUSSION ON PAPERS OF DRS JACKSON HUNNER AND JUDD

Dr R C Coffey, Portland Ore In 1910 I reported some experimental work on implantation of the ureter by running the ureter along the mucous membrane three-quarters inch before it enters the bladder I have since that time implanted four ureters into human beings, one a double implantation In one the ureter at the time was implanted for exstrophy of the bladder, the operation having been done two years ago That patient was in perfect health There is no evidence of ascending infection I have had two cases of cancer of the bladder, one patient went along for eight months with the ureter functionating perfectly, but I have not heard from this patient for over a year

Dr J Wesley Bovée, Washington, D C Implantation of the ureter into the bladder for injuries is an operation which should be avoided It is one in which we must expect as a rule, bad results The bad results, when we have immediate success in the operation, are almost exclusively due to constriction at the point of junction or to too large an opening We get a backing up of urine in the ureter and in the pelvis of the kidney which sooner or later does away with the function of the kidney, if we have a stricture at the point of junction

Dr Robert L Payne, Norfolk, Va In 1907 I carried out some experimental work in uretero-ureteral anastomosis There is no structure in the body which heals more kindly and lends itself so well to surgical intervention as the ureter if it is handled properly The success of surgical procedures on the ureter depends on the blood supply The ureter must be handled with extreme gentleness in order not to compress or injure it and set up thrombosis of its periureteral blood supply

Dr Howard A Kelly Baltimore Many mild infections are liable to result in stricture of the ureter My work has been confined very largely to strictures of the ureter of major caliber, and they are tighter I have some of these cases on hand now that are interesting I remember my first case in 1888 I diagnosed a tight stricture of the ureter and treated the patient for some time We were not recognizing tuberculosis then as readily as we are today, and it was a case of tuberculosis In 1891 I took out the kidney doing a nephro-ureterectomy The patient died at the end of one week My next case was one of gonorrheal stricture of the right ureter I dilated this stricture, and the woman got well and is living today

Dr Charles R Robins Richmond, Va In the first case that came under my observation the patient had a bleeding uterus due to fibroids She gave a history of having had the left kidney removed about ten years previously On account of the fact that she had only one kidney left, we made an elaborate examination and were not able to detect any trouble with the right kidney Hysterectomy was performed without any untoward result except that as the patient was convalescing from the operation she developed a high degree of pyelitis in the right kidney As there was only one kidney to deal with it gave me considerable concern This was treated by lavage of the kidney, and after a rather slow convalescence lasting for a long time, she finally made a recovery sufficient to go home Her fever which was high and subject to extreme exacerbations, had gone down to normal, and she was allowed to go home, although there was still some pus in the kidney Lavage was practiced at regular intervals and we were unable to discover anything which would suggest that the patient had a stricture of the ureter

Dr George Tully Vaughan Washington, D C I have seen two or three cases one in a man aged 24, who had trouble in his right side of a chronic character off and on for a considerable time Cystoscopy revealed no urine coming from the right ureter He was operated on because of appendicitis The appendix was found much inflamed, and inflammatory tissue surrounded the ureter The ureter above this point was dilated below it was very small The appendix was removed, the tissue dissected off, and the urine passed down through the constricted part of the ureter into the bladder I operated on this patient about six months ago, he continued to pass urine from that side, but after six months there has been a subsidence

Syphilis of the Stomach

Dr William A Downes, New York Observations have been made in eight cases of syphilis of the stomach for periods extending from one and one-half to three and one half years Two cases were of the congenital type, and six of the acquired One patient died of a generalized syphilis one and one-half years after the diagnosis was made The remaining seven are well from a clinical standpoint, so far as their stomach symptoms are concerned They are able to follow their usual vocations and have gained from 10 to over 50 pounds in weight Five of the patients were subjected to gastro enterostomy for the relief of symptoms due to obstruction

Congenital Lipoma of the Cheek

Dr Joseph Ransohoff, Cincinnati The first patient was a child of several months with a large myxolipoma of the cheek The second case, also congenital is of the cheek The child was operated on when 1 year of age The second operation revealed the fact that in conjunction with the lipoma there was very extensive lymphangioma In many of these congenital lipomas, the lymphangiectasis is a common complication

Traumatic Asphyxia

Dr J Garland Sherrill, Louisville, Ky A bridge builder, aged 35 was caught and squeezed, he was doubled up and his head brought down on his knees by at least 7 tons of metal He presented marked ecchymosis and swelling over the head and forehead and down to the malar bones This area was dark purple and clearly delineated by an abrupt margin where the healthy color of the skin joined the swollen discolored part Pressure did not affect the discoloration There was present a subconjunctival hemorrhage on each side which was bright red contrasting strongly with the purplish discoloration of the adjacent tissues—a striking appearance Rupture of each eardrum with hemorrhage from the ear canal was noted Bleeding also occurred from the nose There were no other injuries, except a few minor bruises and a fracture of the seventh rib on the right side The patient was fully conscious and the reflexes were normal, with no evidence of cerebral injury The pupils were equal and responsive to light and accommodation The diagnosis of traumatic asphyxia was confirmed by the subsequent history of the case The patient recovered without untoward incident

Zinc Chlorid in Uterine Hemorrhage, Particularly When Caused by Uterine Myomas and Metro-Endometritis

Dr H J Boldt, New York I do not approve of the removal of the uterus for bleeding if it is not the seat of a neoplasm Zinc chlorid is used in all instances of severe bleeding whether due to metro endometritis or simple endometritis, but particularly when caused by interstitial myomas of small size In large tumors, especially of the uterus, it is more desirable to extirpate I use a 50 per cent solution of zinc chlorid more frequently than weaker solutions Care must be taken to avoid having the medicament come in contact with the cervical mucosa lest a stricture result In several instances of very profuse bleeding from interstitial myomas, some measuring about 6 inches in diameter, in women past 40 years of age, I have seen complete amenorrhea established after using twelve, or even a less number of zinc chlorid applications While the tumors do not decrease in size, the health of the patients improves as the result of amenorrhea There must be no oozing of blood from the endometrium when the intra-uterine applications are made, the uterine cavity must be dry If it is not, it may be prepared with an intra-uterine tampon of styptic gauze

Cancer of Mammary Tissue Misplaced in Axilla

Dr J Shelton Horsley, Richmond, Va An unmarried woman, aged 46 who had two sisters with cancer, noticed a growth in the right axilla which became quite painful There was no evidence of any primary lesion elsewhere An examination of removed tissue showed it to be malignant Three years and four months after the operation, the patient was entirely free from recurrence

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Prosecution of Quacks and "Patent Medicine" Fakers—A recent *Bulletin* of the New York City Department of Health gives a list of the prosecutions made by the department under that section of the Sanitary Code regulating the manufacture or sale of drugs or medicines which are adulterated or misbranded Most of the cases prosecuted thus far have been by inspectors of the Bureau of Food and Drugs During the past three months Anthony Ofries has been fined $100 for selling phenacetin which was adulterated, Charles Stiriz was given thirty days for selling a paralysis "cure", Smith and Zibriskie were fined $800 for selling an infantile paralysis 'cure' Salvatore F Sellare for the use of wood alcohol, $500 and thirty days, J A Miller for adulterating phenacetin and other tablets, $500, and Peter U Russ for selling a consumption 'cure" $100 or thirty days A number of additional cases are now waiting trial

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Diseases of Children, Chicago

January XIII No 1

1 *Three Cases of Congenital Familial Cyanosis and New Method of Diagnosis of Congenital Heart Lesions J H Hess and R G Pearce Chicago —p 1
2 Phenol Excretion in Urine of Infants, Including New Born C U Moore Portland Ore —p 15
3 Chemistry of Spinal Fluid of Children J S Leopold and A Bernhard New York —p 34
4 Alkali and Earth Alkali Equilibrium in Spasmophilia C G Grulee Chicago —p 44
5 Acrocephaly Report of Two Cases P Lewin Chicago —p 61
6 *Excretion of Sodium Chlorid Solution Injected Subcutaneously L E Holt, A M Courtney and H L Fales New York —p 73
7 Factor of Inanition in Development of Acetonuria in Children B S Veeder and M R Johnston St Louis —p 89
8 *Infantile Scurvy Therapeutic Value of Yeast and of Wheat Embryo A F Hess New York —p 98

1 Congenital Familial Cyanosis—The results of the analyses made by Hess and Pearce show that the cyanosis is not a faulty gas exchange of the blood as it passes through the lungs for this is above normal, but rather lies in a reduction of the amount of blood which reaches the left ventricle from the pulmonary circulation The rate of blood flow is normal or above normal through the systemic circulation They believe therefore, that the blood sent from the left ventricle is a mixture of venous and arterial blood, and that the tension of oxygen in the arterial blood is below that normally found The larger percentage of reduced hemoglobin in the arterial blood than is found in normal individuals imparts the blue color to the skin The amount of oxygen, however, delivered to the tissues is sufficient to meet their needs, due at least in part to the increased hemoglobin content of the blood, and the amount of carbon dioxid excreted by the lungs is kept within normal limits by the greater difference in the effectual diffusion pressure of carbon dioxid between arterial and venous blood in the lungs

The cyanotic boys are not different from other boys in their ability to do the ordinary things of life However, their power of endurance does not compare with that of a normal boy When forced pulmonary ventilation is pushed, the color markedly improves These boys are all subject to bronchitis and this tendency might be explained on the assumption that a deficient oxygen supply in the blood of the bronchial artery is a factor in producing congestion or edema in the lungs The authors conclude that the pathology consists of a cardiac abnormality The methods, outlined, afford a new means of investigating the relationship of the pulmonic circulation to the systemic circulation, and in the present case renders the diagnosis of a septal or ductus defect highly probable

2 Phenol Excretion in Urine of Infants—In the series of fifteen infants examined by Moore the phenol excretion per kilogram of body weight is less in the breast-fed than in the artificially fed infant In infants and in adults there is an interrelation between the total phenol excretion and the protein intake as measured by the total nitrogen excreted in the urine This relation can be expressed in the general term, trebling the protein intake doubles the phenol excretion Contrary to the earlier findings phenol is quantitatively present in the urine of every new-born infant, the average of these nineteen cases being 11 2 mg for the first three days of life As phenol is present during this period of starvation, it must originate in part through endogenous metabolism

3 Chemistry of Spinal Fluid of Children—Chemical examination of the spinal fluid in ten normal cases in children gave the following results The total nonprotein nitrogen varied between 17 and 26 mg per 100 c c of fluid, the urea nitrogen varied between 7 and 13 5 mg , the creatinin varied between 0 7 and 1 5 mg In no case was there enough uric acid present in the spinal fluid to give a positive quantitative test The sugar content varied within very narrow limits (0 07 and 0 1 per cent) The concentration of total nonprotein nitrogen in the spinal fluid averaged 75 per cent of that in the blood, the urea 82 per cent of that in the blood and the creatinin 60 per cent of that in the blood The chemical examination of the spinal fluids from diseased children showed the following conditions In chorea, idiocy, syphilis, epilepsy and enuresis the nonprotein nitrogenous constituents of the spinal fluid closely paralleled the normal

In acute nephritis without uremic symptoms the total nonprotein nitrogen was slightly increased and uric acid was *present in small amounts* In acute nephritis with uremic symptoms the total nonprotein nitrogen, urea and creatinin were markedly increased and uric acid was present in slight amounts The sugar content was also increased In serous meningitis the nonprotein nitrogenous constituents, as well as the sugar content were within normal limits In tuberculous meningitis the total nonprotein nitrogen and the urea were normal, but the creatinin was slightly increased Uric acid was present in every case, but the sugar content was normal or slightly reduced In cerebrospinal meningitis the nonprotein nitrogenous constituents were normal, but the sugar content was reduced In a fatal case of meningitis in which the streptococcus was found, the nonprotein nitrogenous constituents were normal and sugar was absent In the early stages of infantile paralysis the nonprotein nitrogenous constituents, as well as the sugar content, were within normal limits

6 **Sodium Chlorid Excretion**—The authors' metabolism studies support the clinical conclusions as to the beneficial effects of repeated saline injections

8 **Yeast and Wheat Embryo Infantile Scurvy**—Clinical experience demonstrated that yeast is of no value in scurvy either as a prophylactic or as a curative dietetic agent It was found, however to possess virtue as a stimulant to growth, when added to the milk in the form of the fluid autolyzed yeast or given to older infants as a desiccated powder The embryo or germ of the wheat seed manifested some value as an antiscorbutic, but not sufficient to render it useful in this connection from a practical or clinical standpoint The watery extract, which is readily prepared, was found to stimulate growth and may be used to advantage, on account of this quality as a substitute for barley in milk preparations

American Journal of Medical Sciences, Philadelphia

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9 Abnormalities of Growth J B Mendel New Haven, Conn—p 1
10 Syphilis of Stomach Report of Twenty Three Cases G B Fusterman Rochester Minn—p 21
11 Intermediary Metabolism in Diabetes G Lusk New York—p 40
12 *Clinical Significance of Glucose Nitrogen Ratio in Diabetes Mellitus N W Janney New York—p 44
13 *Starvation Treatment of Diabetes C F Martin and E H Mason Montreal Canada—p 50
14 *Influence of Acidosis on Hyperglycemia in Diabetes Mellitus A A Epstein and J Felsen, New York—p 58
15 *Fatal Case of Diabetes Mellitus Associated with Large Cell Hyperplasia J R Williams Rochester and M Dresbach Ithaca N Y—*p 65*
16 Renal Glycosuria J R Murlin and W L Niles New York—p 79
17 Clinical Studies of Acidosis J H Austin and L Jonas Philadelphia—p 81
18 *Toxemias of Pregnancy J R Losee and D D Van Slyke New York—p 94
19 Determining Intragastric Temperature in Man Variations After Ingestion of Hot and Cold Liquids and During Digestion A Stengel and A H Hopkins Philadelphia—p 101
20 Aspirating Bougie for Esophagus and Stomach M Einhorn New York—p 106
21 *Treatment of Circulatory Failure in Acute Infections. M Goodridge New York—p 107

12 **Glucose-Nitrogen Ratio in Diabetes Mellitus**—By means of improved experimental methods it was established by Janney that the fasting urinary glucose-nitrogen ratio of severe diabetes mellitus is about 3 4 1 The glucose-nitrogen ratio is, therefore, to be regarded as a definite index of the severity of this disease In association with other factors to be considered, the glucose-nitrogen ratio is a valuable prognostic sign

13 **Starvation Treatment of Diabetes**—Two important points are worthy of note in the authors' observations 1 The ferric chlorid reaction is sometimes absent when acidosis is present, and is less sensitive, too, than the nitroprussid reaction 2 The urine does not always show a reaction for acidosis even when the blood gives a positive quantitative result, therefore, the excretion of the acid bodies is not necessarily an index of the degree of acidosis, while in diabetes the reverse occurs Sometimes, however, in Martin and Mason's cases, acidosis was initiated by the starvation, at other times a preexisting acidosis was increased, though usually it disappeared Evidently there is a variation due to many circumstances, though starvation ultimately does make the urine acid free In one persistent case of very mild diabetes, with prolonged mild acidosis, interrupted periods of a fat free diet seemed especially useful in clearing up remnants of the acidosis In one very severe case in which the acidosis disappeared on starvation, it developed again on a protein-fat diet, and later on disappeared with one day of starvation Sodium bicarbonate was given (32 gm per diem) for five days, with resulting elimination of more ketone bodies Excretion of these bodies ceased again with cessation of bicarbonate administration Another experience worthy of note is the varying ratio of the acetone bodies to beta-oxybutyric acid Sometimes there is much acetone and little beta oxybutyric acid and sometimes the reverse occurs There seems to be little constancy, and the percentage of 60 to 80 as usually recorded, is subject to many wide exceptions

14 **Hyperglycemia in Diabetes**—The study made by Epstein and Felsen showed that the withdrawal of food from certain cases of diabetes provokes, or aggravates the acidosis The acidosis causes an increase in the blood sugar content, in one of two ways (*a*) by augmenting the mobilization of sugar, and (*b*) by affecting the sugar secreting function of the kidneys Liberal, but judicious, administration of carbohydrate may control the acidosis provoked by the withdrawal of carbohydrates or complete fasting, thus leading to a general amelioration of the diabetes A progressive rise in the blood sugar content associated with a gradual fall in the alveolar carbon dioxid is indicative of impending coma

15 **Fatal Case of Diabetes Mellitus**—A case of fatal diabetes with large cell hyperplasia of the spleen, lymph nodes and liver is presentd by Williams and Dresbach It is the fourth case on record so far as the authors can tell The hyperplasia has some resemblance to the cell changes in Gaucher's disease of the spleen It is shown that overfeeding with fat increases acidosis in diabetes and probably bears some relation, as yet not understood, to lipoidemia The acidosis is readily controlled A brief discussion of some of the newer ideas regarding fat metabolism is given

18 **Toxemias of Pregnancy**—Losee and Van Slyke found that neither blood nor urine of eclamptic women shows, as a rule, an amino acid content above normal limits Inspection of the other nitrogen figures of the urine shows that the urea in eclampsia is usually below the average normal, often strikingly so, even if calculated on the basis of total nitrogen of the urine minus the albumin nitrogen The only eclamptic urines which showed more than 70 per cent of urea nitrogen were those obtained one or more days postpartum The ammonia was often higher than the average in normal individuals but the abnormality is less striking than that of the urea All the cases of pernicious vomiting showed strikingly high ammonia percentages, none of the cases showed less than 16 9 per cent In five cases of nontoxic pregnancy the nitrogen ratios were normal The authors conclude that the toxemias of pregnancy can be attributed neither to failure in diaminization of the amino-acids, nor to the moderate degree of acidosis observed The nature of the toxin or toxins remains unknown

21 **Circulatory Failure in Acute Infections**—In Goodridge's opinion there is neither clinical nor experimental evidence to support the belief that failure of the vasomotor center is the cause of the symptoms of circulatory failure which occur in acute infectious disease While it has been shown experi-

mentally that the heart is not exhausted in animals dying of acute infectious diseases, there is no positive proof that the myocardium is wholly efficient in its effect to maintain the circulation in the body of the living animal under such circumstances The hypothesis which suggests the existence of a third center controlling the flow of blood is important even though it is not yet proved Alcohol and strychnin are absolutely worthless drugs in the treatment of circulatory failure Epinephrin and pituitary extract are useful in the treatment of sudden circulatory collapse, but their action is not a sustained one The nitrites are valuable additions to the therapeutic armamentarium in the treatment of pulmonary edema under certain circumstances, because of their selective action in constricting the pulmonary arteries Caffein increases the flow of blood when the supply to the heart is "inadequate" probably by an action on some mechanism outside of the heart One of the most important contributions of recent times on the action of digitalis is the proof electrocardiographically that it exerts precisely the same effect on the heart in febrile conditions that it exercises in nonfebrile states, and whether the rhythm is initiated in the normal pacemaker or not

American Journal of Roentgenology, New York

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22 *Roentgen Examination as Aid in Differential Diagnosis between Pneumonia and Empyema Especially in Children W H Stewart New York —p 559
23 Practical Points on Use of Intensifying Screens and on Their Selection and Care H Threlkeld Edwards South Bethlehem Pa —p 585
24 Device for Obtaining Lateral Roentgenograms of Spine in Hyper extension R Hammond Providence R I —p 589
25 Plan of Roentgen Department in Hospital P M Hickey Detroit —p 590

22 Abstracted in The Journal, Nov 18 1916, p 1549

Archives of Pediatrics, New York

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26 Pertussis I A Abt Chicago —p 881
27 Care and Asepsis in Hospitals for Infants A Strauch Chicago —p 899
28 *Heart Disease in Infancy and Childhood A L Goodman New York —p 909

28 **Heart Disease in Infancy and Childhood**—Cases of rheumatism in children are treated by Goodman in the following manner During an acute attack give the patient sodium salicylate, if this is not well borne by the mouth use it per rectum If there is already an accompanying heart condition, use fluidextract of digitalis and spartein sulphate in rather large doses If there is no accompanying heart complication, give smaller doses and examine the heart at frequent intervals to observe any occasion for increasing the dose The children are kept in bed until all vestige of pain has disappeared, and the heart sounds have improved or become normal The children's guardians are then warned of the so-called 'growing pains,' and the moment the pains reappear, or difficulty in walking is noticed by the parents, the children are at once placed in bed and the salicylate given every hour or two until the pain has disappeared Give the salicylate, after an attack, two or three times a day for two weeks longer Children with rheumatism should not be subjected to extremes in temperature Rapid evaporation from the surface of the body should be avoided In summer light cotton underwear should be used, and in winter a mixture of wool and cotton will be found more serviceable as it is not so heavy as the wool alone, and, absorbs perspiration more readily than the allwool garment

The children should receive daily lukewarm baths never hot and never cold, followed by a brisk rubbing with a coarse bath towel If there exists any adenoid growth or enlarged tonsils they should be removed When the children come in from the street after play their stockings should be removed, their feet rubbed dry and a fresh pair of stockings substituted Damp dwellings should be avoided Parents with children subject to rheumatism should be told that they may not live on the ground floor The sleeping room should be sunny and have a southern exposure, if possible. In reference to diet Beef should be avoided, especially beef juices or extracts, spiced and fried foods should not be permitted Sweets, such as candy and pastry, should be forbidden, and, above all, coffee, tea and alcohol

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

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29 Fat Dystrophies of Endocrinous Origin H G Beck, Baltimore —p 98
30 Relation of Glands of Internal Secretion to Female Pelvic Organs C W Vest Baltimore —p 102

California State Journal of Medicine, San Francisco

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31 Diabetes in Pregnancy Report of Cases W A Beattie, Sacramento —p 11
32 Use of Whole Blood in Hemorrhage Report of Cases H R Oliver San Francisco —p 13
33 Attitude of Physician toward Venereal Patient A M Meads, Oakland —p 15
34 Obscure Symptoms of Rheumatism in Children J A Colliver Los Angeles Cal —p 18
35 Treatment of Fractures of Long Bones S J Hunkin San Francisco —p 20
36 *Trial of Goodman's Autoserum Treatment of Chorea H K Faber San Francisco —p 27
37 Case of Typhus Exanthematicus in San Francisco I C Brill San Francisco —p 29
38 Sulphur as Remedy for Rheumatism W F McNutt San Francisco —p 30

36 **Goodman's "Autoserum" Treatment of Chorea**—Goodman's method consists in the injection one to four times repeated of the patient's own serum into the subdural space of the spinal canal Faber says that improvement, shown by the disappearance of choreic movements occurs frequently within three days or even less, and a majority of cases remain permanently free of movements Certain instances of recurrence are mild and readily amenable to the action of another injection Of the thirty cases treated by Goodman fourteen received one injection eight received two injections, five received three injections, and three received four injections Of those receiving one injection, twelve were cured and two markedly improved Of those receiving two injections, five were cured and three markedly improved Of those receiving three injections, two were cured and one markedly improved one slightly improved and one unimproved Of those receiving four injections, one was cured one markedly improved and one unimproved Faber used the method in three cases An almost immediate cessation of choreic movements followed a single injection of the patient's own serum into the spinal canal, and no recurrence of symptoms has occurred in a little over a month

Florida Medical Association Journal, Jacksonville

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39 Hormones and Hormone Therapy J E Caldwell Bradentown —p 161
40 Duty of Physician Toward Eradication of Malaria G E Henson Jacksonville —p 165
41 Vitamin A W Downs Philadelphia —p 169
42 Treatment of Morphin Habit W C Douglass Tampa —p 172
43 Herniotomy S Stringer Tampa —p 174
44 Poliomyelitis or Heine Medin's Disease G H Benton Miami —p 176
45 Alcoholic Insanity Report of Case D C Main Welaka —p 181
46 Pituitary Extract G C Kingsbury Largo —p 182
47 Calomel L S Oppenheimer Tampa —p 183

Illinois Medical Journal, Chicago

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49 Health Insurance from Standpoint of Physician G T Palmer Springfield —p 5
50 Dementia Praecox Studies B Holmes Chicago —p 9
51 Vaccine Therapy in Treatment of Modern Diseases F M Wood Chicago —p 13
52 Symptoms and Diagnosis of Infantile Paralysis T McEachern Rochelle —p 21
53 Epidemic of Typhoid W M Friend Park Ridge —p 23
54 Brief Review of Pavlov's Work J J Moorehead Chicago —p 25
55 Diabetes Mellitus—Why do Glycosuria and Acidosis Increase During Work in Some Diabetics? Suggestion in Treatment M B Leviton Chicago —p 34
56 Mental Mechanisms B F Williams Lincoln Neb —p 35

57 Cerebrospinal Syphilis Treatment C D Humes Indianapolis —p 38
58 Case of Juvenile General Paresis F C Potter, Indianapolis —p 40
59 Case of Bilateral Lenticular Degeneration M A Bahr and F C Potter, Indianapolis —p 44
60 Education of Feebleminded G Bliss Fort Wayne, Ind —p 46
61 Report of Cases Recently Discharged from Watertown State Hospital F A Causey, East Moline —p 47
62 Case of Alcoholic Polyneuritis with Unusual Trophic Disturbances G B Hassin Chicago —p 51
63 Accessory Sinuses of Nose W H Gardner Bloomington —p 54

Journal of Immunology, Baltimore

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64 *Comparison of Antigenic Properties of Different Strains of Bacillus Typhosus S B Hooker, San Francisco —p 1
65 *Hecht (Gradwohl Modification) Complement Fixation Reaction in Syphilis with Special Reference to Cholesterinized Antigens J A Kolmer Philadelphia —p 23
66 *Correct and Incorrect Methods of Performing 'Daily Titrations' for Wassermann Reaction and Other Forms of Complement Fixation R Ottenberg —p 39
67 Methods of Determining Optimal Amount of 'Antigen' for Wassermann Reaction R Ottenberg New York —p 47
68 *Study of Two Hundred and Ninety Postmortem Wassermann Reactions S Graves, Louisville, Ky —p 53
69 *Study of Von Dungern's Indigo Test for Syphilis E P Flood New York —p 69
70 *Comparative Study of Different Methods of Performing Wassermann Test for Syphilis J W Smith, Jr and W J MacNeal New York —p 75
71 Studies in Anaphylaxis Mechanism of Delayed Shock R Weil New York —p 95
72 *Id Simultaneous Injections of Antigen and Antiserum Anaphylatoxin Theory of Anaphylaxis R Weil New York —p 109
73 Studies on Antibodies Analyses and Nitrogen Distribution of Number of Antiserums L J Banzhaf K Sugiura and K G Falk New York —p 125

64 **Antigenic Properties of Different Strains of Bacillus Typhosus**—By means of the alexin fixation reaction Hooker was able to demonstrate consistent antigenic differences among some strains of *B typhosus* By means of agglutinin absorption experiments, findings have been obtained that, in general, harmonize strikingly with the results of cross fixation This confirmatory evidence, secured by a widely different serologic method, Hooker says, tends strongly to prove that these antigenic differences among typhoid strains as demonstrated by alexin fixation, represent an actual condition and are not fortuitous The facts that a serum immune to any recently isolated strain cross fixes with all other strains old or young while serums immune to older strains do not so cross fix, would lead to the seemingly justified assumption that only do the young strains contain all of the antigenic complexes of typhoid bacillary protein The logical conclusion, then would be that a young strain ought to afford the most efficient protection when used for prophylactic immunization against typhoid However, the results of the work on agglutinin absorption, if correctly interpreted, do not warrant the assumption that a univalent vaccine is sufficient Therefore it seems advisable, for the present, to recommend the use of a balanced polyvalent typhoid vaccine, for immunizing and therapeutic purposes

65 **Hecht Complement Fixation Reaction**—The Hecht reaction as modified by Gradwohl, and conducted with a properly standardized antigen Kolmer claims constitutes a very delicate control over the Wassermann reaction, although it possesses a greater negative than a positive value The fewest pseudoreactions occurred with an extract of acetone insoluble lipoids An alcoholic extract of syphilitic liver proved of least antigenic sensitiveness and yielded the highest percentage of false or pseudoreactions The modified Hecht and Wassermann reactions including the use of cholesterinized extracts, yielded similar results in 82 per cent of a series of 360 serums The modified Hecht reaction yielded about 16 per cent more positive reactions and about 12 per cent more true positive reactions than the Wassermann reaction conducted with a cholesterinized extract as antigen, 26 per cent more true positive reactions than the Wassermann conducted with an alcoholic extract of liver and 18 per cent more true reactions than the Wassermann with an extract of acetone insoluble lipoids Kolmer believes that the modified Hecht reaction has its greatest value as a serologic control in the treatment of syphilis

66 **Methods of Performing "Daily Titrations" for Wassermann Reaction**—Ottenberg's experiments demonstrate that in the Wassermann reaction compensating for increased hemolytic strength of the complement by using a diminished amboceptor dose inevitably leads to a negative result in certain grades of weakly positive serums The correct method of compensating for complements of greater than average hemolytic strength is by using a smaller dose of complement The method of doing daily complement titrations is greatly to be preferred to the method of keeping the dose of complement fixed and doing daily amboceptor titrations

68 **Postmortem Wassermann Reactions**—In 90 4 per cent of cases showing postmortem anatomic lesions of syphilis or presenting positive evidence of syphilis in their histories the serums postmortem gave positive Wassermann reactions Only 7 per cent of 282 cases showed negative reactions in the presence of anatomic lesions (aneurysms) characteristic of syphilis

69 **Von Dungern's Indigo Test for Syphilis**—Flood claims that the alkali and not the indigo is the sole inhibiting agent in the von Dungern's test The method is of no value in the serum diagnosis of syphilis for in a series of 140 serums forty of which were evidently syphilitic, coagulation occurred in but three with the prescribed amount of reagent

70 **Wassermann Test for Syphilis**—The use of a simple alcoholic antigen with the first incubation carried out in the ice-box for four to twenty-four hours was found to be more sensitive in the detection of syphilis than the other procedures tested

72 **Anaphylatoxin Theory of Anaphylaxis**—Characteristic anaphylactic symptoms were produced by Weil exceptionally by the simultaneous but separate injection of antigen and antibody intravenously They may be produced by the simultaneous separate injection of two foreign serums or proteins not related as antigen and antibody

Journal-Lancet, Minneapolis

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76 Present Status of Treatment of Fractures O W Parker Fla —p 10
77 Elements of Psychiatry What Busy Practitioner Should Know About Mental Diseases H R Hummer Canton S D —p 15

Laryngoscope, St Louis

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83 Removal of Fragment of Tracheotomy Tube from Lung Six Years After Its Inspiration F R Packard Philadelphia —p 1371
84 General Surgical Principles as Applied to Tonsillectomy W Marshall Pittsburgh —p 1374
85 Hyperplasia of Paratonsillar Gland After Tonsillectomy Preliminary Report H Hays New York —p 1380
86 Electric Foot Switch A G Bryant, Boston —p 1383

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88 Organization of Special Surgical Unit in General Hospital H H Young Baltimore —p 8
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90 Diagnosis and Treatment of Trachoma W M DA Carhart New York —p 16
91 Importance of Accurate Diagnosis of Urologic Disturbances Encountered in Gynecologic Practice W F Dannreuther New York —p 19
92 New Research Work Relating to Alcoholic Question T D Crothers Hartford Conn —p 21

Michigan State Medical Society Journal, Grand Rapids

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93 To Be Forewarned Is to Be Forearmed A McKenzie, Port Huron—p 1
94 Diagnosis and Significance of Tuberculous Bronchial Lymph Nodes H M Rich Detroit—p 7
95 Practical Value of Polygraph in Diagnosis of Cardiac Disorders C E Stewart Battle Creek—p 9
96 Tonsillectomy in Adults J J Moffett Port Huron—p 17
97 Case of Sarcoma of Thyroid H J Vandenberg Grand Rapids—p 18
98 Case of Polyserositis. N B Foster, Ann Arbor—p 21
99 Case of Papulonecrotic Tuberculides J A Elliott, Ann Arbor—p 22
100 Case of Suppurative Otitis Media with Complete Thrombosis of Lateral Sinus Superior Petrosal Sinus and Jugular Bulb with Invasion of Labyrinth R B Canfield Ann Arbor—p 24
101 Unusual Case of Anorectal Fistula C G Darling Ann Arbor—p 25

Military Surgeon, Washington, D C

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102 Advantages of Military Training for Young Man W H Arthur, U S Army—p 1
103 Present System of Recruiting for U S Navy and Marine Corps M S Elliott New York—p 10
104 Recruiting for Military Service L T Woodbury U S Army—p 17
105 Heart of Recruit and Soldier E K Tullidge Austrian Army—p 24
106 Special Physical Examination of Aviators for U S Army C H Connor U S Army—p 29
107 Comparative Hearing Requirements in Foreign and American Navies G P Trible U S Navy—p 33
108 Demography in so far as it Relates to Vital Statistics of Armies W P Chamberlain U S Army—p 37
109 Another Viewpoint of Red Cross Work in Serbia S O Beasley—p 45
110 Prophylaxis and Treatment of Tetanus A McGlannan U S Army—p 52
111 *Toxic Effect of Emetin Hydrochlorid H H Johnson and J A Murphy U S Army—p 58

111 **Toxic Effect of Emetin Hydrochlorid**—Emetin hydrochlorid has been used by Johnson and Murphy as the principal remedy in the treatment of 142 cases of endamebic dysentery The authors have found its use, results and dangers somewhat analogous to those of salvarsan in syphilis Two men died under treatment from peculiar and unusual conditions in no way connected with the disease from which they suffered, five other cases showed physical signs and symptoms which it is believed were due to emetin In the two fatal cases there was (1) inability to swallow after food had reached the esophagus (2) hepatization of the lungs and (3) rapid and uncontrolled action of the heart Both patients showed, at first, a general motor weakness affecting particularly the muscles of the back of the neck with a tendency for the head to fall forward later a difficulty in swallowing, and finally a pneumonia of lobar type. One case showed decided cardiac signs, possibly attributable to failure of vagus control These cases were treated with emetin, particularly during the acute stage of the disease, and received in all 23½ and 25 grains each In the five cases mentioned the untoward symptoms were somewhat similar and disappeared promptly when medication was stopped

The authors present method of administering emetin in cases of endamebic dysentery is as follows ⅓ grain daily, increasing ⅓ grain per day until 1 grain is given, continued until 8 grains have been given With the emetin, bismuth subnitras in large doses, is given For the succeeding period of ten days colonic irrigations of 1 1,000 quinin solution are given once or twice daily If the stool is still positive a subsequent course of emetin, 1 grain daily, is given for three days By this method of treatment the patient receives 11 grains, which is less than the single lethal dose stated by Sir Leonard Rodgers This procedure usually suffices to free the stool from ameba and cysts There are occasional cases which will require a third course which is not instituted until after a sufficient lapse of time and not then if asthenia or special contraindications exist, that is, motor weakness, irregular heart action, nervous exhaustion or irritative diarrhea In view of the experiences the authors advise a very careful and watchful course in the use of emetin, in protracted cases especially

New Jersey Medical Society Journal, Orange

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112 Protective Inoculation by Use of Vaccines and Serums G T Leonard New Brunswick—p 1
113 Poliomyelitis D Elliott Newark—p 5
114 Prophylaxis and Treatment of Postanesthetic Vomiting C J Larkey Bayonne—p 8
115 Use of Iodin in Obstetrics M E Swiney Bayonne—p 10

New Orleans Medical and Surgical Journal

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116 Incontinence of Urine in Women M J Gelpi New Orleans—p 486
117 Large Typhoid Abscess Report of Case J M Perret New Orleans—p 492
118 Tubo-Uterine Rupture at Fourth Month of Gestation P Michinard New Orleans—p 496
119 Bacterial Cultures of Human Spleens Removed by Surgical Operation A W Sellards Boston—p 502
120 Occurrence of Parasite in Tick S B Wolbach Boston—p 519

119 **Bacterial Cultures of Human Spleens Removed by Surgical Operation**—Bacterial cultures were made by Sellards of human spleens removed for surgical purposes in ten cases The cultures from four of these spleens remained sterile In three instances a micrococcus was obtained and in three other cases an anaerobic bacillus developed The anaerobic bacillus in its morphology, in its cultural characteristics and in its serologic reactions resembled very closely the bacillus isolated by Plotz in typhus The weight of evidence indicates that this group of organisms represents parasitic but nonpathogenic flora of the human body There is not sufficient evidence to ascribe a specific etiologic role to members of this group of anaerobic bacilli in either typhus or in pernicious anemia

New York Medical Journal

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121 Bronchial Asthma W Freudenthal New York—p 1
122 Treatment of Hypertension and Complicating Conditions W B Snow New York—p 5
123 Pathology of Poliomyelitis and Its Relation to Virus G E Price Philadelphia—p 9
124 Rollier Treatment of Tuberculosis C L Hyde and H Lo Grasso Perrysburg—p 11
125 Borderline Cases of Upper Abdomen H Weinstein New York—p 18
126 Treatment of Stitch Suppuration by Bismuth Paste A R Hollender Chicago—p 20
127 Infiltration Anesthesia for Tonsillectomy Together with Employment of Normal Saline Solution M S Ersner Philadelphia—p 21
128 New and Powerful Galactogogue (Autotherapy) C H Duncan New York—p 22

Ohio State Medical Journal, Columbus

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129 Surgical Treatment of Exophthalmic Goiter G W Crile Cleveland—p 7
130 Medical Treatment of Exophthalmic Goiter A Crotti Columbus—p 8
131 Exophthalmic Goiter J P Sawyer Cleveland—p 11
132 Deductions Drawn from Use of Salvarsan in Treatment of Syphilis H N Cole Cleveland—p 16
133 Traumatic Hysteria Report of Cases W F Bay Columbus—p 18
134 Ductless Gland Therapy and Dermatology E D Tucker Toledo—p 21

South Carolina Medical Association Journal, Greenville

December 1916 XII No 12

135 Abdominal Cesarean Section Indications Technic Report of Case J R Young Anderson—p 365
136 Tuberculous Patients Unsuited for Sanatoriums E Cooper Columbia—p 372
137 State s Duty to Feebleminded A B Patterson Barnwell—p 374
138 General Paresis Diagnosis and Treatment J F Munnerlyn Columbia—p 376
139 Classification of Pathologic Hearts J E Edwards Spartanburg—p 380

West Virginia Medical Journal, Huntington

September 1916 XI No 2

140 Stones in Gallbladder F S Mathews New York—p 73
141 Sanitation on Cabin Creek W Va After Flood Aug 9 1916 E S Tisdale—p 89

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

Annals of Tropical Medicine and Parasitology, Liverpool

December 1916 X No 3

1 Fourth Variety of Trichonocardiasis Cultivation of Nocardia Tenuis (Castellani, 1911) J W S Macfie —p 283
2 Urinary Amebiasis J W S Macfie —p 291
3 Morphology of Certain Spirochetes of Man and Other Animals J W S Macfie —p 305
4 Studies in Blackwater Fever Importance of Furnishing Statistics in Connection with Cases J W W Stephens —p 345

British Medical Journal, London

December 23 1916 II No 2921

5 *Influence of Antiseptics on Activities of Leukocytes and Healing of Wounds C J Bond —p 861
6 Dysentery Carriers A M Kennedy and D D Rosewarne —p 864
7 Case of Amebic Abscess of Liver Occurring Twenty Years after Original Attack of Dysentery C C Low —p 867
8 Fulminating Type of Cerebrospinal Fever P W Maclagan and W F Cooke —p 869
9 Treatment of Trench Feet A S Gillett —p 870
10 *Home Made Bread Substitutes for Diabetic Patients R T Williamson —p 870

5 **Influence of Antiseptics on Leukocytes** —If it be true that some part (how large a part is at present unknown) of the spread of infection in wounds is due to a breakdown in the defensive mechanism of phagocytosis, of which return immigration is only one phase, if, in other words, a certain number of pus cells in infected wounds reenter the circulation or the tissues carrying ingested but still living organisms with them, and if a certain proportion of the latent infection in sinus cases and the recrudescent sepsis which breaks out in healed wounds is due to this same cause then, says Bond, any method of wound treatment to be successful must deal with the problem of the return immigration of germ laden phagocytes If antiseptic solutions when applied to wounds are sufficiently strong to kill the phagocytes and their cargoes and so prevent their reentrance into the tissues they will also inhibit emigration and phagocytosis The irrigation of a wound with normal saline favors emigration and ingestion but it does not prevent return immigration The application of hypertonic saline on the other hand, may prevent return immigration by killing the leukocytes, but it also checks emigration and phagocytosis

Bond's observations suggest that return immigration of leukocytes is intimately associated with the spread of infection and recrudescent sepsis in wounds The spread of infection is due to a breakdown in one or more of the factors on which phagocytosis depends Either the wandering phagocytes do not emigrate into the invaded area in sufficient numbers, or, having emigrated they do not ingest the organisms, or the breakdown of the defensive mechanism may occur at a later stage The phagocytes may emigrate and successfully intern the invading organisms, but they may fail to digest them or things may go wrong during return immigration The organisms may be liberated by the leukocytes while still alive, just as the pigment granules may be liberated, and they may retain sufficient virulence to originate a recrudescent infection in a new area It is quite likely, says Bond that some part of the autointoxication which attends the too free movement of infected limbs may depend on a liberation of ingested organisms brought about by injury to germ containing leukocytes rather than to a mechanical pumping of the organisms or their toxins into the tissues

10 **Home-Made Bread Substitutes for Diabetic Patients** —Williamson uses a soluble casein containing a small percentage of phosphate and gluten coconut and almond flour

Glasgow Medical Journal

December 1916 LXXXVI No 6

11 Outdoor Occupations for Tuberculous Cases J W Allan —p 321
12 *Advanced Pulmonary Tuberculosis W T G Davidson —p 330
13 Liver Abscess Among Soldiers A C Faulds —p 337

12 **Tuberculin in Treatment of Advanced Tuberculosis** —Davidson's experience has been that tuberculin has done good even in cases of fairly advanced phthisis, though the number of cases treated has not been sufficient to make the evidence conclusive He does not claim to have cured any patient of the disease with it, but he has treated about fifty patients, specially selected, but all with advanced lesions These patients put on weight, their general health improved, immunity was brought about from toxemic symptoms, cough became very slight and the sputum scanty, and in some cases both entirely disappeared The lesion in the lungs was not so marked, in several cases the local signs had practically disappeared, and the patients were dismissed very much improved

New tuberculin B E was found to give the most satisfactory results The initial dose was 0 3 c c of a dilution of one in a million, and a dose was administered biweekly unless there was some contraindication each subsequent dose being increased by 0 3 c c Whenever the dose exceeded 1 c c a dilution of the fluid ten times less (one in 100,000) was used For example, the first four doses would be 0 3 c c, 0 6 c c 0 9 c c of a dilution of one in a million, the next dose instead of being 1 2 c c of the same dilution would be 0 2 c c of a dilution of one in 100 000, and so on, until the undiluted tuberculin was given, when the increase of the dose each time was 0 1 c c The treatment lasted for about three months and came to a conclusion after 1 c c of pure tuberculin was given But it is evident that the treatment should be kept up for a longer period, since many cases which had improved under its influence, and had kept well for some time afterward, tended to get worse again when away from the influence of the tuberculin

Lancet, London

December 23 1916 II No 4869

14 *Antiseptic Treatment of Wounds I Feldman and A J Walton —p 1043
15 Cerebral Associations of Raynaud's Disease H J Norman —p 1049
16 Treatment of Lamblia Infections C Dobell and C C Low —p 1053
17 Fulminating Type of Cerebrospinal Fever Pathology and Cause of Death P W Maclagan and W F Cooke —p 1054
18 Importance of Getting Pregnant Woman Under Medical Supervision and Affording Her Necessary Treatment A Routh —p 1055
19 Two Fatal Cases of Metastatic Gas Gangrene K Taylor —p 1057

14 **Antiseptic Treatment of Wounds** —The antiseptic advocated by Feldman and Walton is prepared by rubbing together in a mortar crystals of pure phenol and camphor in equal parts by weight—a perfectly clean sweet smelling liquid being thus obtained As is the case when using any other application it is primarily essential to provide adequate drainage When seen in a relatively early stage the wound, if deep or punctured should be opened under general anesthesia so as to eliminate, so far as possible, any pockets in the tissues and all foreign bodies, loose pieces of bone, or necrotic tissue should be removed When the wound has been freely opened sufficient of the liquid is poured in to reach the whole surface of the tissues In large wounds as much as 1 or 2 fluidounces may be required although as a general rule one or more fluidrams are sufficient Drainage tubes are inserted as required and packed round with gauze soaked in the fluid. On the surface dry gauze is applied It is only necessary to change the dressing every forty-eight hours, when a few drops of the fluid are poured down the tube and fresh soaked gauze applied to the raw surfaces When the treatment is commenced some days or weeks after the infliction of the wound it is again necessary to open up all sinuses and pockets so that the fluid may reach all the septic areas and if necessary tubes should be inserted so that free drainage is established The fluid is then used in the same manner as previously It is noteworthy that the fluid can be handled freely without doing any harm to the skin, but if left for a prolonged period in contact with patient's skin around the wound a certain amount of burning may be caused, for this reason surface dressings should be formed of dry gauze It is rarely necessary to smear the surrounding skin with sterilized petrolatum

It is claimed for the method that it overcomes sepsis more rapidly than other methods With its use amputations are much less frequent It diminishes pain rather than increases it, as is so often the case with other dressings The dressing requires to be changed only at long intervals Its use is associated with no danger The amount of work in the ward is greatly diminished It is most suitable to the conditions of modern warfare and can be easily applied to cases that have to travel

Medical Journal of Australia, Sydney

November 25, 1916 II, No 22

20 Account of Hospital Ship Karoola G Craig—p 447
21 Rupture of Bladder C I Todd—p 453
22 Case of Extraperitoneal Rupture of Bladder H Rischbieth—p 454

December 2, 1916 No 23

23 Thyroid and Internal Secretion J C Verco—p 465
24 Seven Cases of Labyrinthitis, with Six Operations on Labyrinth M A Reid and M F Lynch—p 470
25 Case of Acute Cerebrospinal Meningitis K Inglis—p 474

Sei-I-Kwai Medical Journal, Tokyo

December 1916 XXXV No 12, pp 73 78

26 Relation Between Diabetes Mellitus and Albuminuria S Iwai—p 73 To be continued

Archives de Médecine des Enfants, Paris

November 1916 XIX No 11 pp 561 616

27 *Dyspeptic Diarrhea in Children C Blanc (Lausanne)—p 561
28 *Syphilitic Meningitis and Meningeal Reactions in Syphilitics M Lavergne—p 579
29 Recovery from Tetanus under Intravenous Serotherapy P Nobecourt and E Peyre—p 588
30 Milk as Vehicle of Infection of Malta Fever J Comby—p 597

27 **Dyspeptic Diarrhea**—Blanc emphasizes that this disturbance is the result of a disproportion between the food that has to be digested and the juices which are to digest them Consequently each of these factors must be investigated separately The food may be at fault or one or more of the digestive juices may be inadequate The clinical picture is described in detail of nervous functional and dyspeptic diarrheas and the means of investigation in each, especially when the diarrhea is due to insufficiency on the part of the pancreas Emaciation is an important sign of the latter and also anemia, as the pancreas secretes hemolysins when it is becoming atrophied There is liable also to be hint of bronzing, and colic on the left side is a characteristic feature The stools are whitish and oily, the palmitin coagulates *en masse* like tallow There is also much residue of undigested meat fibers Steatorrhea and creatorrhea may occur in normal conditions when fat and meats are eaten in undue amounts

Among the useful tests are alimentary glycosuria, and alimentary steatorrhea and creatorrhea If the pancreas functioning is defective, Blanc advises to restrict the intake of meat and of fats increasing the proportion of starch, which is digested well in such cases, and stimulating secretion in the pancreas by giving hydrochloric acid and pepsin, which aid in the formation of trypsin To stimulate production of steapsin he gives pills of bile between meals, as the biliary acids stimulate secretion of steapsin Intestinal diarrhea from fermentations does not affect the general health as a rule, but neurasthenia is common The stools reveal the acid dyspepsia The fermentation irritates the bowels and they protect themselves by mucous secretions The diet should be modified into an antidiabetic diet, meat, cream, fat, butter rice and potatoes Casein may be given and the bowels disinfected

28 **Meningeal Reactions in Syphilitics**—Lavergne has had four cases of meningeal symptoms in children for which neither tuberculous nor cerebrospinal meningitis was responsible In two they were a manifestation of inherited syphilis in the others the meningeal reaction occurred in the course of an acute infectious disease All the children recovered completely None of them had ever presented signs or symptoms otherwise that might have suggested an inherited taint, but the Wassermann reaction was found positive and under mercurial treatment recovery was soon complete Whenever meningeal reactions are accompanied by an appreciable lymphocytosis, the Wassermann test should be applied without delay

Bulletin de l'Académie de Médecine, Paris

1916 LXXV No 6 pp 131 154

31 Remote Results of Anastomosis between Intestines and Biliary Apparatus (Resultats eloignes des anastomoses entero biliaires) P Bazy—p 135
32 Wine from Psychologic Standpoint C Fiessinger—p 141
33 Preparation of Catgut Goris—p 148
34 Direct Laryngoscopy Tracheoscopy and Esophagoscopy in Specialist Service for the Wounded Guisez—p 152

Paris Médical

December 16 1916 VI No 51 pp 529 544

35 Treatment of Skull Wounds (Traitement des plaies du crane dans les ambulances de l avant) A Schwartz—p 529
36 Curative Value of Serotherapy in Tetanus (De la valeur curative du serum antitetanique) E Merle—p 533
37 *Anastomosis of Intestines without Opening the Lumen (Nouveau procede d enterectomie et d entero anastomose aseptiques) Gudin—p 539
38 Suture of Wound in Heart (Plaie du cœur traitee par la suture, avec survie de neuf heures, chez un blesse atteint de plaies multiples) I rtaud—p 541

36 **Antitetanus Serum in Treatment of Tetanus**—Merle has been making extensive experiments which have demonstrated anew the special affinity of the nerve cells for the tetanus toxin, and also that they are able to neutralize a certain proportion of the toxin The toxin arriving in amounts greater than the cells can neutralize is adsorbed by the cells and held so firm by them that it does not feel the influence of any antitoxin injected This seems to be able to act only on the toxin left in the blood stream, but Roux and Borrel, by injecting the antitoxin directly into the brain of guinea-pigs were able to neutralize the toxin already fastened in the nerve cells The application of similar measures in the clinic has not given the anticipated results, probably, Merle says, because the antitoxin has not been applied directly to the cells in sufficient quantities He cites thirty-seven cases reported by various writers of recovery from tetanus under intraspinal injections of large doses of antitetanus serum They encourage further trials of the method, injecting the antiserum into the spinal canal and rectum, intravenously and subcutaneously, to act on the toxin by all methods of approach A transient aggravation of the symptoms may follow

37 **Entero-Anastomosis Without Exposing the Lumen**—The bowel is crushed with clamps on each side of the portion to be resected With small forceps the bowel is seized at the edge of each of the crushed segments The intervening segment and its mesentery are cut out and the two small forceps are brought together and the stumps are sutured together, the stitches including the forceps The forceps are then withdrawn and a grooved sound is introduced in place of the forceps and is worked in until it has spread apart the tissues crushed together by the clamp This is done for each stump, loosening apart the mucosa and muscular walls of the bowel and thus rendering the bowel permeable It is claimed that this method ensures hemostasis while it avoids the operations in two sittings, and the lumen is not opened until the suture is complete Gudin's clinical experience with this method has been extremely favorable He gives illustrations of the various steps of the method for entero-anastomosis, and also an illustrated description of the same principle applied to gastro-enterostomy

Presse Médicale, Paris

December 14 1916 XXIV No 69 pp 569 576

39 *Nature and Serotherapy of Infectious Hemorrhagic Jaundice (La spirochetose icterohemorrhagique) L Martin and A Pettit—p 569
40 *Experimental Research on Section and Restoration of Nerves in Dogs E Duroux and A Couvreur—p 572

39 **Hemorrhagic Jaundice**—Martin and Pettit give a complete review of the present status of what they call icterohemorrhagic spirochetosis, including an account of their own research, and clinical experiences, reproducing a typical fever chart, and describing the results of inoculation of guinea-pigs with blood or urine from patients The clinical case reported was a laboratory infection, Dr G L, who has been doing this kind of work for years, having been in charge of the glanders service for ten years He inoculated guinea-pigs at

a two days' interval and six or seven days later developed a severe typhoid-like condition accompanied by intense jaundice The disease reached its height in a week and guinea-pigs inoculated died of spirochetosis in five days Improvement became evident by the twelfth day and he was able to get up the eighteenth day, but he was unable to start to work for three or four months The case shows that the incubation is one week Infection seems to have occurred when the virulence of the virus had been enhanced by the passage through guinea-pigs In the second case the disease was mild but confirmed by inoculation of guinea-pigs Martin and Pettit have produced now from the horse an antiserum which has proved its efficacy conclusively on guinea-pigs, even at the third day of the infection otherwise fatal in six days They say that every infectious jaundice should be examined for the Inada-Ido spirochete, of which they give some illustrations

40 **Operations on Nerves in Dogs**—Dogs seem to stand the severing of even large nerves much better than man But even in dogs the immediate restoration of function is illusory The peripheral end does not recuperate its functions until it has been penetrated by the fibers from the central stump Suture and possibly grafting give best results Compression from proliferation of connective tissue must of course always be corrected

Correspondenz-Blatt für Schweizer Aerzte, Basel

December 16 1916 XLVI No 51 pp 1697 1728

41 *Welfare Work for School Children with Ear Disease (Fürsorgebestrebungen fur ohrenkranke Schulkinder) O Laubi —p 1697

42 Utilizing the Muscular Force in Stump of the Arm to Control Functioning of Artificial Hand (Un nouvel appareil pour les mouvements volontaires de la main artificielle) N Fialko —p 1703

43 *Regular Daily and Yearly Fluctuations in the Body Temperature (Bemerkungen uber die regelmassigen taglichen und jahrlichen Schwankungen der Körperwarme und ihre Herkunft) R Ammann —p 1710

41 **Welfare Work for Children with Ear Disease**—Laubi states that for twenty-two years he has examined the ears of the children entering school for the first time at Zurich As the child's aptitude for profiting by the school instruction depends on the functioning of the eye and ear, it is to be deplored that examination of the eye and ear is not the rule everywhere on entering school At Zurich, the school inspector or teacher examines the children first and all who cannot hear the whispered voice at 8 meters are referred to an ear specialist During the twenty-one years, 1894-1914, from 4 8 to 21 6 per cent were thus found abnormal, a total of 6,785 out of 62 738 children examined in these years, namely, 11 8 per cent of all the boys and 9 8 per cent of the girls (Nager found 40 per cent at Lucerne, and Bezold has reported 25 8 per cent, Ostmann 28 4 per cent, and Denker 23 3 per cent, who were unable to hear a whisper at 8 meters) A circular is sent the parents giving the location and hours of the policlinic where ears are treated, and the children are obliged to bring a certificate to the effect that they have applied for treatment

The very deaf are given a desk near the teacher, the best ear turned to the teacher, and each child is given a 'protector," an intelligent child who sits near and explains to him what he fails to hear Ear trumpet devices are recommended for those who cannot otherwise hear their own voice, mainly so they can listen to and modulate their own voices The curved hand to promote hearing is also advised Lip reading is essential, and Laubi recommends Gutzmann's treatise on this subject (1912) A special school or classes are advisable for children who are unable to hear a whisper at 2 meters The teachers should be trained in the care of deafmutism, and Laubi deplores that there is no state examination in Switzerland, as there is in Germany, that guarantees special training for welfare work among the deaf He urges the organization of a school with three grades for the children with defective hearing, with special training to improve vision, and with extra manual training work The school might also, he says, include the children with eyesight requiring much correction The expense of such a school renders it impracticable at Zurich at present, but there is already valuable work being done in this line in five cities by a private organization, the Hephatavereine, which assembles the younger children and trains them in hearing exercises, and in the use of the voice, with gymnastics and games

43 **Regular Fluctuations of the Temperature**—Ammann reviews what has been written on this subject citing the findings on pigeons, monkeys and other animals and on man, in regard to the diurnal and nocturnal variations in the normal temperature He then tabulates the findings over a whole year in a healthy person with regular habits, not doing heavy work The temperature was taken on rising in the morning and just before going to bed, the thermometer held in the mouth for fifteen minutes each time There was an average daily variation and also an annual the body temperature gradually reaching its highest point in July and lowest in November, practically uninfluenced by the atmospheric temperature The fluctuation was 0 43 of a centigrade degree Ammann theorizes that the electricity in the air is responsible for the daily and yearly fluctuations

Medizinische Klinik, Berlin

November 19 1916 XII No 47 pp 1223 1248

44 *Venesection plus Autoserotherapy (Eigenserum und Aderlass—Lehre und Anwendung) B Spiethoff —p 1223 To be concluded

45 *To Expel the Blood in Operating on the Limbs (Kurze Bemerkung zur Blutleere bei Operationen von den Extremitaten) Ritter —p 1228

46 *Salvarsan in Treatment of Pernicious Anemia R Lampe —p 1228

47 The Sago Like Lumps in Dysenteric Stools (Ueber die sagokornähnlichen Klumpchen in den Ruhrentleerungen) B Ullmann —p 1230

48 Case of Echinococcus Disease of the Skin (Fall von Cysticercus cellulosae der Haut) F Fischl —p 1233

49 *Neurasthenia of the Heart (Zur Symptomatik der Neurasthenia cordis) K Singer —p 1233

50 Folding Operating Table (Ein Feldoperationstisch) O Loewe —p 1235

51 Indications for Obstetric Operations by the General Practitioner (Zur Indikationsstellung bei den geburtshilflichen Operationen des praktischen Arztes) H Walther —p 1236 To be continued

44 **Venesection Plus Autoserotherapy**—Spiethoff has apparently established that equally favorable results can be realized with the patient's own serum as with alien serotherapy The benefit does not depend on supplying certain lacking elements but on a broader principle, which includes the individual's own serum He here reports his favorable experiences with the method in a variety of skin diseases and acute general infectious diseases He draws from 50 to 100 c c of blood and reinjects into a vein the serum from this blood after coagulation The procedure is repeated on alternate days at first and then twice a week Or the venesection can be smaller, and 5 c c injected intravenously every day The dosage is extremely important He has never witnessed with this form of serotherapy anything like the phenomena of hypersusceptibility sometimes noted with foreign serum, but there is usually a transient general and a focal reaction Promising experiences are related with rebellious urticaria, eczema, pemphigus, scalp disease and gangrenous ulcers Pruritus at all ages offers an exceptionally grateful field for this technic If the favorable effect diminishes, he advises changing to Ringer's solution injecting 300 c c two or three times a week intravenously or subcutaneously Good results were obtained in the complications of gonorrhea, acute febrile swelling of the epididymis and prostate rapidly retrogressed in his experience

45 **To Expel the Blood from the Limb**—Ritter commends the principle of Trendelenburg's 'spit' (*Spiess*) for checking the flow of blood at the hip and shoulder When this special instrument is not available, the same result can be obtained *with long forceps or scissors* He has never had the constricting rubber tube slip He does not describe the technic

46 **Salvarsan in Pernicious Anemia**—Lämpe declares that he has never witnessed such pronounced and durable improvement from any other measures in pernicious anemia as he realized under salvarsan in the three cases described The patients were women of 40, 45 and 50, and the anemia was in a grave stage, the hemoglobin *30* per cent, reds 1,400,000, in the first case, with syncopes and hourly vomiting Under

six small doses of salvarsan—a total of 0 65 gm in five weeks—the patient rapidly improved and in four months the hemoglobin had risen to 70 per cent and the reds to 4,400 000 She felt quite well for seven months, but then symptoms of pernicious anemia returned and as the heart was weak no attempt to give salvarsan again was made Necropsy confirmed the diagnosis and the fatty degeneration of the heart Equally favorable results were obtained in the two other cases, the reds numbered 1 200 000 and 1 000 000 and both patients were restored to clinically perfect health and endurance Syphilis and helminthis could be excluded in all three cases, and under salvarsan the morphologic blood findings returned to normal A permanent cure can scarcely be expected, but the last two patients are still in good health The six or seven doses were 0 05 to 0 15 gm each, intravenously in the course of eight or fifteen weeks, and they were borne well as a rule

49 **Nervous Weakness of the Heart**—Singer calls attention to three tests which may reveal an organic basis for the apparently exclusively subjective disturbances One is an especially sensitive area near the heart a hyperesthetic zone, egg shaped or elliptic, near or including the left nipple When the needle is drawn lightly over the right breast and then over the left breast the patient shrinks and exclaims when this tender area is reached He gives illustrations of the area involved in eight cases The second test is what he calls the "vagus pulse" The anomaly in the vagus action is shown most instructively by the difference in the pulse during inspiration and expiration, and between the pulse lying down and sitting up The pulse also grows slower during the "squatting test", the man bends his knees several times and then stays in the squatting position the head bent forward while the pulse is counted It was materially retarded in the heart-neurosis cases dropping from 6 × 21 to 6 × 13, in one case from 6 × 25 during running to 6 × 12 while squatting The retardation is briefly transient In twenty healthy men there was no change in the pulse except in four cases and in these it lasted only for two or three beats But it is common in neuropaths and neurasthenics, even when there is no appreciable heart neurosis

Gazzetta degli Ospedali e delle Cliniche, Milan

December 7 1916 XXXVII No 98 pp 1537 1552

52 *The Various Forms of Purpura (Morbo di Werlhoff e trombopenia essenziale) G Matteucci—p 1539

December 10 No 99 pp 1553 1568

53 *Unusual Localizations of Paratyphoid B Infection A. Florenzano—p 1553

52 **Werlhof's Disease and Essential Deficiency in Thrombogen.**—Matteucci relates that his analysis of cases of purpura has shown that there are nine different varieties of this affection and that certain varieties are amenable to horse serum, while others are not modified by this but are corrected by administration of an extract of blood platelets He lists them as simple purpura, Schonlein's rheumatoid purpura, Majocchi's type with telangiectasis, Landouzy's infectious type, Henoch's fulminating form, Werlhof's disease, essential thrombopeny (Frank) and scorbutic and chronic purpura In two cases described in detail the difference between typical Werlhof's disease and essential thrombopeny is well brought out, and the benefit from horse serum in the first type and from extract of blood platelets in the second The patients were a boy of 16 and girl of 12 Examination of the blood classifies the cases In all varieties, epinephrin is liable to prove a valuable aid It was not needed in the first case, the horse serum answering the purpose alone The varieties of purpura are all of two types, those with and those without normal conditions in the blood platelets

53 **Unusual Localizations of Paratyphoid Infection**—Florenzano remarks that paratyphoid B infection is always a septicemia but the main focus of infection may be in various organs in different cases The disease may run a mild course in three or four days or it may last for three months with remittent or intermittent fever In a case described in detail the localization was in the pleura, and the symptoms from this had preceded the paratyphoid septicemia The disease ran its course through three months the toxi-infectious symptoms recurring in three attacks Tuberculin reactions were negative and great benefit was derived each time from injection into the pleural cavity of an antiparatyphoid vaccine In a second case the paratyphoid infection was installed predominantly in the colon and the symptoms suggested acute appendicitis in the course of the paratyphoid, but it apparently subsided and the patient recovered under medical measures alone In a third case the symptoms were those of acute appendicitis alone with constipation, no diarrhea as in other cases and there had been several days of malaise with fever and chills but nothing to suggest other intestinal trouble In still another case the paratyphoid B septicemia induced a hemorrhagic set of symptoms and then seemed to subside, the temperature becoming normal and the patient feeling well for a day then a severe typical paratyphoid fever set in, with fatal hemorrhage in the bowel One man of 39 had a combination of typhoid and paratyphoid but left the hospital in good condition after a two months' stay

Policlinico, Rome

December 17 1916 XXIII No 51 pp 1489 1522

54 First Treatment of War Wounds of the Joints (La cura immediata delle ferite articolari in chirurgia di guerra) R Mosti—p 1489

55 Caseous Infection of War Wounds F Bartoli—p 1493

56 Case of Hemorrhagic Septicemia with Death from Cerebral Hemorrhage B Frattini—p 1495

57 Recovery from Tetanus under Subcutaneous Injections of Phenol (Caso di tetano guarito con la cura Baccelli) G Merolillo—p 1497

Riforma Medica, Naples

September 11 1916 XXXII No 37 pp 1005 1032

58 Annular Scotoma from Occipital War Wounds G A Pari—p 1005

59 *Total Nitrogen Cholin and Cholesterin in the Cerebrospinal Fluid in Various Pathologic Conditions of the Central Nervous System C Cantieri—p 1009 Concluded

September 18 No 38 pp 1033 1060

60 *Minor Long Continued Fevers and Nervous Fevers (Le piccole febbri nella clinica e le febbri nervose) A Rossi—p 1033

September 25 No 39 pp 1061 1088

61 Addison Syndrome in an Incomplete Form of Recklinghausen's Disease C V Lutati—p 1061

59 **The Nitrogen, Cholin and Cholesterin Content of the Cerebrospinal Fluid**—Cantieri gives the detailed findings in regard to the total nitrogen, the cholin and the cholesterin in the lumbar puncture fluid from thirty-one patients with different diseases There was no regularity to be detected in the cholin and cholesterin content, but the nitrogen content showed an increase in all disturbances of a toxic infectious character affecting the brain, or in disturbance from arteriosclerosis The nitrogen content was also liable to be high in psychoses and epilepsy, as well as with uremic derangement, but with brain tumors there was no increase An extensive bibliography is appended

60 ***Minor Long Continued Fevers***—In a few specimen cases reported, the patients were women in the thirties, a young man and some children Each for a year or two or more had had weeks of depression and slightly abnormal rise in temperature over long periods, for which absolutely no cause could be discovered Rossi comes to the conclusion that the explanation must be some upset in the innervation of the glands with an internal secretion There was nothing to suggest hysteria in any of the cases, but the general nutritional processes seemed below par and functional nervous disturbances of various kinds were manifest

Cronica Medica, Lima, Peru

November 1916 XXXIII No 641 pp 377 420

62 *Peruvian Verruga (Algunas consideraciones sobre la nueva teoria dualista de la enfermedad de Carrion) J Arce—p 377

63 *Postoperative Acute Dilatation of the Stomach (La dilatacion aguda del estomago con oclusion duodenal postoperatoria) G V Riestra—p 391

64 Present Status of *Treatment of Hemoptysis.* (Hemoptisis tuberculosa) E Odriozola—p 399

65 Ephedra Root in Treatment of Certain *Affections* of the Urinary Apparatus (La Ephedra Americana en el tratamiento de algunas afecciones de las vias urinarias) *E* Escomel—p 403

December No 642 pp 421 480

66 Cystic Dilatation of the Bile Ducts from Stenosis of Pancreatic Segment (Dilatacion quistica del hepatocoledoco por estenosis del segmento pancreatico) F Wieland and F Quesada —p 421

67 *Pathologic Anatomy of Dermal Leishmaniasis (Anatomia patologica de las Leishmaniasis dermicas) G Almenara —p 429

62 **Identity of Peruvian Verruga and Oroya Fever** —Arce protests against the conclusions of the report of the Harvard commission on Peruvian verruga (It was published in The Journal, Nov 8, 1913, p 1713) The commission decided that Peruvian verruga and Oroya fever are separate diseases The fact that the same germs were found in both at times, they ascribed to mixed infection But Arce's long years of practice in Peru have confirmed him more and more in the view that they are the benign and the malignant forms of one and the same disease Arce is professor of tropical medicine in the University of Lima, and he presents an array of arguments to invalidate the commission's conclusions Different persons react differently according to their defensive powers, and the germs may differ, they may be represented by two different species or varieties as we know to be the case with the malaria germ The Harvard commission fully established the inoculability from man to man of Peruvian verruga, thus confirming Carrion's work Arce asserts in conclusion that there is no proof as to the zooparasitic nature of the inclusions in the red corpuscles which they call *Bartonia bacilliformis* Arce exclaims "How can we explain these and similar mistakes made by men of unquestionable scientific authority? We must acknowledge the great and multiple difficulties presented in the study of the infinitely small, and of all research in the field of the red blood corpuscle, this highly specialized minute organ, differentiated for its functional perfection, the elective affinity for and fixation of oxygen, but losing in the meanwhile two of the fundamental attributes of the cell the nucleus and the power of reproduction The physiopathology of the red corpuscles is still full of surprises, even under normal conditions, and the pathologic erythrocyte offers a broad field for discussion and erroneous conclusions"

63 **Postoperative Acute Dilatation of the Stomach** —Valle Riestra reports four cases in Denegri's service and three in Carvallo's, all presenting the clinical picture of acute arteriomesenteric occlusion of the duodenum, with extreme dilatation of the stomach Necropsy in the two fatal cases in the last group showed the typical compression of the duodenum by the mesenteric artery, owing to the acute dilatation of the stomach The symptoms in these cases had been ascribed to a nonexistent peritonitis In the others, the correct diagnosis was made in time, and lavage and the knee-chest posture brought the patients through The cause seemed to be the anesthetic plus preceding weakness of the stomach, with or without a tendency to peritonitis, in all but one case In this the acute dilatation developed under the physician's eyes almost entirely from swallowing air This case teaches the necessity for being on the alert to prevent swallowing of air The Trendelenburg position wards off the compression of the duodenum by the artery It can be alternated with the knee-chest posture Chambard insists that no fluid should be allowed by the mouth, and thirst should be combated by the rectum drop method

67 **Dermal Leishmaniasis** —Nearly the whole of this issue of the *Cronica Medica* is devoted to Almenara's illustrated study of the pathologic anatomy and histology of the various forms of superficial lesions caused by the leishmania They can all be classed as the ulcerative or the tubercle types, the latter subject also to ulceration and crust production The ulcerative type is called uta hembra, espundia, juccuya and tiacaraña, the tubercle type is called Oriental sore, uta macho and qcepo In all the cases examined the leishmania was found in the tissues, free in the lymph and plasma or incorporated in the large mononuclear cells

Semana Medica, Buenos Aires

October 5 1916, XXIII No 40 pp 331 358

68 Vaccine Treatment of Eczema (Terapeutica esencial del eczema) N S Loizaga —p 331

69 Symmetrical Gangrene of the Extremities B N Calcagno —p 334

70 *Dosage of Urea in Blood Serum (Procede rapide et exacte pour le dosage de l uree dans le serum sanguin) F Landolph —p 337

71 *To Enlarge the Uterine Cervix for Emergency Evacuation of the Uterus (Procedimientos que permiten vencer la resistencia opuesta por el cuello para el vaciamiento rapido del utero) U Fernandez —p 338

72 Climatotherapy of Tuberculosis in Argentina J M Escarlier and P D Galli —p 342

73 Puncture Followed by Lavage in Diagnosis of Suppuration in the Maxillary Sinus A S Lagomarsino —p 351

74 Associated Reflexes (Asociacion de reflejos—sinreflexias) A Austregesilo and T Mendez —p 352

70 **Dosage of Urea in the Blood Serum** —Landolph commends a method for this purpose which has proved simple and satisfactory in his hands He mixes 2 c c of the serum with 2 c c water and from 1 5 to 2 c c of pure hydrochloric acid This is brought to the boiling point for a moment and then filtered through a small filter with folds It speedily filters through and the residue on the filter is washed with 4 c c water The filtered fluid is treated directly with 20 or 30 c c of sodium hypobromite in the A Robin ureometer Practically all of the nitrogenous compounds capable of yielding nitrogen as urea are eliminated by this procedure which, he thinks, reduces the sources of error to the minimum

71 **Emergency Dilatation of Uterine Cervix** —Fernandez advocates incising the cervix rather than attempting to dilate it by mechanical means when the pregnancy is in the last half He has thus operated on eight women with progressive tuberculosis or other cause requiring prompt evacuation of the uterus The effects were excellent and two of the women have passed since through a normal pregnancy

Siglo Medico, Madrid

November 25 1916 LXIII No 3285 pp 753 768

75 Recommendation dated 1881, of a Mixture of Chlorinated Lime and Oxalic Acid for Treatment of Wounds (Recuerdo de un antecedente) C M Cortezo —p 754

76 The Allen Fasting Treatment of Diabetes Madinaveitia —p 755

77 *Balneotherapy in Treatment of Disturbances from Hypertrophied Prostate (Procedimiento para combatir los fenomenos del prostatismo) M Fernandez —p 759

December 2 1916 No 3286 pp 769 784

78 General Paresis Mistaken for Neurasthenia (Un caso de diagnostico tardio) C Juarros —p 770

79 The Chlorophyl Function (Una nueva explicacion de la funcion clorofiliana) V de Castro —p 774

77 **Balneotherapy for Enlarged Prostate** —Fernandez reports the case of an elderly man with hypertrophied prostate causing intense reflex phenomena and polyuria with pains before and after micturition, the desires returning every ten minutes on an average rest at night being impossible He had tried all kinds of measures but without avail Fernandez then ordered baths the same as for uterine trouble ten or twelve baths of ten minutes each, with the water at 45 C (113 F) After the first bath conditions were improved so much that two hours elapsed before micturition became necessary By the end of sixteen days, the cure seemed complete there being no further pains and the intervals approximately normal This condition has persisted for the two months to date (Fernandez gives no details of the technic for the baths *a la prostata*, except that they were taken "according to his method" He practices at Vichy Catalan, Spain)

Grèce Médicale, Athens

1916 XVIII No 17 18 pp 33 36 French Supplement of Iatriki Proodos

80 Treatment of Congenital Dislocation of the Hip Joint P Nicolaidis —p 33 Concluded

Russkiy Vrach, Petrograd

1916 XV No 42 pp 985 1008

81 War Wounds of the Chest (Ognestr raneniya grudnoi polosti i ikh lechenie) A L Polienoff —p 985

82 *The First Dentition and Abnormal Conditions Therein (Zabluzhdenie prof Heubner'a—Berlin—v voprosie o 1 m *prorezivanii* zubov u dietei) A O Karnitzky —p 989 Commenced in No 41 p 962

83 Injury of the Organ of Vision in War Wounds of the Head Povrezhdeniya zritelnago organa pri ognestr raneniakh golovi) R A Katz —p 994 Continued

84 *Periodic Leukocytosis V M Sokoloff —p 997

82 **The First Dentition**—Karnitzky protests against Heubner s energy' theory of the first dentition, saying that the same laws which regulate growth and development at all ages govern them at the first dentition as later He has been making a special study of conditions affecting the first dentition, and tabulates data from 5,735 children, including 2,143 under 12 months old, all with affections of the respiratory apparatus, and also the data from 13 151 with digestive disturbances, including 4,249 under 6 months old and 3 402 from 6 to 12 months, and also a long list of apparently healthy children Analysis of all this material confirms the frequency of pathologic conditions in infants particularly between the sixth and twelfth months when they begin to have more intercourse with the external world—just the months when the teeth are developing Not only the well defined pathologic states, but possibly overlooked stomatitis slight sore throat, slight grippe, a touch of typhoid, slight intermittent fever, lymphangitis in the neck, and so on These conditions may affect the development of the teeth under the same laws as regulate conditions in adults The formation of the teeth may be diverted from normal, and there may be pathologic local processes in the teeth, defects in the dentine or enamel, pulpitis and carious processes in the teeth after they cut through In short, he declares, instead of theorizing about the first dentition examine the babies mouths, and much that is surprising will be learnt, when the children are below par in any way or the parents at the time of conception were not entirely healthy

84 **Periodic Leukocytosis**—Sokoloff adds another to the imposing array of works issued by Boldireff and his pupils, of the university of Kazan, on the periodical fluctuations in the functioning of the vital processes, especially of the digestive tract outside of digestion This article gives tables of details of tests on thirty-three dogs to show the fluctuations in the leukocyte count during exercise and during rest Changes of 6 000 in the figure were by no means uncommon, the higher figures being encountered during exercise and when the digestive tract was most active The conclusion is drawn that the leukocytosis is elicited by the action of ferments in the digestive juices the pancreatic and intestinal juices, during exercise these juices are forced out into the blood stream in larger proportions The fluctuations average about the same as with the leukocytosis of digestion, sometimes one and sometimes the other being highest The bibliography on this special research is appended including a number of theses both at Kazan and Petrograd All are in Russian except an early communication from Boldireff in the *Ergebnisse der Physiologie* 1911 Some have been summarized in these columns, as, in The Journal, Oct 9, 1915, p 1316 Nikulin s article on periodical vomiting

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

November 18 1916 II No 21 pp 1849 1920

85 *Snapping Hip (Over de veerende heup ziekte van Perrin Ferraton) G Kapsenberg—p 1849
86 The Visual Field as Guide to Operating in Glaucoma (Gezichtsveldonderzoek en glaucoomoperatie) D J Waardenburg—p 1866
87 *Urine Containing Indigo Red (Indigoroodhoudende urine.) L de Jager—p 1873
88 *Present Status of Prophylaxis of Scarlet Fever (De tegenwoordige roodvonkbestrijding) H G Ringeling—p 1874

85 **Snapping Hip**—Kapsenberg discusses with illustrations the mechanism of typical and atypical snapping hip and reports a few cases to show the different factors that may be involved In the typical form it is caused by the abnormally taut fasciogluteal fibers springing over the major trochanter The jerk of the snap is accompanied by a click The snapping can be done voluntarily, in which case there is no pain, or the snapping occurs automatically and is usually accompanied by some pain The snapping may be from the iliopsoas muscle, above the greater trochanter In a case in his own practice a young man had fallen on the right buttock and there was pain in the region and hip joint and some stiffness in the leg but nothing abnormal could be detected to explain the pain *in the buttock* when *the hip joint* was moved and the snap when this thigh was flexed or extended The jerk and snap were most pronounced as the man reclined and moved his hip joint, the jerk being felt through the whole leg The click seemed to come from the hip joint It resembled the noise made when a reducible dislocation is reduced The movements of the leg were normal at all times, but in running or climbing stairs the snapping phenomenon occurred occasionally There was no snapping across the greater trochanter, but a distinct jerking movement could be seen in and felt in the tissues close to the anterior superior iliac spine, in front of the attachment of the sartorius muscle Roentgenoscopy showed apparently normal conditions, but a very taut tendon was found deep below the surface It was evidently responsible for the snapping as it moved to and fro across a bony projection The tendon was about 1 cm broad and evidently belonged to the iliopsoas muscle It was severed and the upper stump sprang back out of sight The snapping was cured at once, but the man still has some pain in the region and later the hip joint and knee on the other side have become painful, showing a general tendency to joint troubles This tendency may have been responsible for *some change in the bone which may have caused indirectly* the snapping of the tendon

87 **Indigo Red in the Urine**—De Jager recently had a specimen of urine sent in for examination which contained albumin and, supposedly, blood as it was reddish, but no red corpuscles could be detected in the sediment and the reaction was alkaline The patient was an unmarried woman of 88 The guaiac and benzidin tests for blood gave negative findings, and other tests proved the coloring matter to be indigo red He thinks it liable that this has sometimes been mistaken for blood

88 **Hospital Treatment in Prophylaxis of Scarlet Fever**—Ringeling says that the known cases of scarlet fever in Amsterdam for the months of August, September and October have been in 1912, 1915 and 1916, respectively, 1 566, 673 and 1 147 He has seen return cases develop after 46, 48 49, 55, 75 and 88 days of hospital treatment of the scarlet fever with every possible means of prophylaxis applied For this and for other reasons, especially when we reflect that the healthy bacilli carriers cannot be isolated, it seems that not much can be anticipated from hospital treatment of scarlet fever in general prophylaxis of the disease, but the families are thus released from the annoyance of quarantine, which is a great advantage He warns further that scarlet fever is a treacherous disease An apparently mild case may have severe complications and may transmit the disease to others in a severe form The mortality in the recent epidemics has been only 0 32, 0 74 and 2 18 per cent of the notified cases, and he queries whether the prompt hospital treatment may not have been the decisive factor in this low mortality In 1915, fully 80 per cent were taken to the hospital and only 0 74 per cent. died Statistics from London are cited showing how the mortality of the known cases has dropped from 5 6 per cent. to 2 since 1890, in inverse proportion to the percentage of cases taken to the hospital This was 42 8 per cent, with a mortality of 5 6 per cent in 1890, the total number of cases being 3 7 per thousand inhabitants The figures in 1910 were 85 6 per cent in the hospital, mortality 2 per cent the number of known cases being 2 5 per thousand inhabitants In short Ringeling declares, progress is to be realized by taking more and more the cases of infectious diseases of all kinds to the hospitals

Finska Lakaresallskapets Handlingar, Helsingfors

September 1916 LVIII No 9 pp 1297 1470

89 *Mechanism of Traumatic Rupture of Internal Organs A Krogius—p 1297
90 *Subconjunctival Injections of Sodium Citrate in Treatment of Glaucoma V Gronholm—p 1329
91 *Treatment of Spontaneous Tuberculous Pneumothorax A v Bonsdorff—p 1339
92 *Hydrosalpinx Pathologic Anatomy Etiology Pathogenesis and Clinical Experiences B H Jagerroos—p 1357

Supplement pp 1 78

93 *Fibromas Sarcomas and Mixed Tumors of the Ovaries and Results of Operative Treatment (Undersokning ofver lakningsresultaten vid den operativa behandlingen af desmoida ovarialtumörer) M af Heurlin—p 1

89 **Traumatic Rupture of Internal Organs**—Krogius gives a number of illustrations to show the various types of rupture of the spleen, liver and other organs under the influence of contusions bending or squeezing them When the force bends the organ, the rupture is on the convex side and runs perpendicularly to the force applied, the edges of the rupture are sharp, and the rupture is more extensive on the surface than below Rupture from compression runs parallel to the force, and may occur on both sides of the organ The rupture extends more in the depths than on the surface, and the edges are torn and uneven These features of rupturing may be useful in criminal cases to determine the character of the force applied In making tests on the cadaver, the organs must have fluid injected to bring them up to the physiologic tonus

90 **Sodium Citrate in Treatment of Glaucoma**—Gronholm's experience was disappointing He injected the 4 05 or 5 41 per cent solution of sodium citrate, making thirty-three subconjunctival injections in four cases, including two eyes with inflammatory glaucoma, two with simple glaucoma and two with absolute glaucoma Pain and swelling followed in the acutely inflamed glaucomatous eyes, but there was no modification in the pressure In the other cases benefit was apparent, the pressure in some of the eyes returning to normal But this effect proved transitory It is possible that this treatment might prove effectual in combination with myotics, but it cannot compete with operative measures

91 **Spontaneous Pneumothorax in Pulmonary Tuberculosis**—Bonsdorff concludes from his experience in nineteen cases of this kind that treatment should aim to transform the spontaneous pneumothorax into a seropneumothorax or serothorax, and then, as soon as the fistula has healed, to aspirate the effusion and introduce nitrogen in its place, keeping up the artificial pneumothorax as long as conditions require This method was applied in three of his cases and proved completely successful in two In the third case the fistula refused to heal

92 **Hydrosalpinx**—Jagerroos' long study of this subject fills sixty-four pages, including two devoted to bibliography It is based on 100 clinical cases As conservative operative treatment is the rule, only fifty-eight pathologic anatomic specimens were obtained There are no especially characteristic symptoms, he says, so that it is almost impossible to determine beforehand the exact nature of the trouble Conservatism was carried to the extreme, and recent reexamination of seventy of the 100 women showed forty-five entirely cured of all disturbances to date, after salpingotomy In three cases the hydrosalpinx returned on the other side In fourteen cases treated with salpingostomy, the results have been entirely satisfactory, in two other cases a tumor developed later on that side One woman has passed through a normal pregnancy since In five cases there is still some subjective disturbance although the objective findings are normal

93 **Ovarian Fibromas and Sarcomas**—Af Heurlin's profusely and handsomely illustrated monograph is based on 45 ovarian tumors of the fibroma and fibrosarcoma types He reviews the literature on the subject of desmoid ovarian tumors The article proceeds from the gynecologic clinic in charge of Engstrom The fibromas formed 1 9 per cent and the sarcomas 3 6 per cent of the total 688 operative ovarian tumor cases at the clinic The malignant sarcomas were bilateral in 50 per cent of these 9 cases, while only 12 5 per cent of the spindle-cell sarcomas involved both sides The fibromas never invaded both ovaries The average age in the spindle-cell sarcoma cases was 47 1 years, while 2 of the other sarcoma patients were between 18 and 19, 2 between 20 and 24, 4 between 35 and 40, and 1 between 40 and 45 One of the fibroma patients had exophthalmic goiter and died from embolism the second week The others are all in good health from four to nineteen years since the operation The mortality in the spindle-cell sarcoma cases was 12 5 per cent A similar proportion are living four years since the operation, while 50 per cent are living after an interval of from six to twenty-three years In the 9 malignant sarcoma cases, 33 per cent died soon after the operation and only 2 are still living, one only recently operated on, the other after an interval of twenty-two months The others died from recurrence in from two to fourteen months These types of ovarian tumors are encountered, according to his statistics, in a ratio of one to every 20,000 inhabitants One case per year of ovarian fibroma would correspond to 1,000,000 inhabitants, one spindle-cell sarcoma to 800,000, and one malignant sarcoma to 1,500,000 These figures are based on the population of Finland in 1914, namely 3,269,253 This is a lower percentage than in Sweden and Denmark

Ugeskrift for Læger, Copenhagen

November 23 1916 LXXVIII No 47, pp 2051 2076

94 *Rupture of Spleen from Contusion (To Tilfælde af subkutan traumatisk Miltruptur) C Tage Hansen—p 2051

95 *Phototherapy in Danish Sanatoriums (Lysbehandling af Tuberkulose paa nogle jydske Sanatorier) T Begtrup Hansen—p 2057

November 30 No 48 pp 2077 2112

96 *The Sugar Content of the Blood (Nogle Bemærkninger om Blodsukkerbestemmelsernes Teknik og nogle Iagttagelser over Blodsukkerets Forhold ved lette Glykosurier) F Rydgaard—p 2007

97 Quantitative Determination of Albumin in the Urine (Nogle Bemærkninger om kvantitativ Bestemmelse af Aeggehvide i Urinen spec om 'Esbachs Metode' og dens Modifikation ved Gad Andresen) E Biering Petersen—p 2089

94 **Rupture of the Spleen**—In Hansen's two cases both of the patients recovered after removal of the spleen which had been split into two parts The symptoms of the intraperitoneal hemorrhage in one case were all in the right side, which was misleading, but was explained by the fact that the left side of the bed stood against the wall, so the lad of 16 had to lie on his right side as there was much vomiting and collapse The other patient, a woman of 38, had signs of peritoneal irritation but it was not severe and the trauma seemed insignificant and the general condition kept good Possibly the morphin that had been given had contributed to this There was much less loose blood than in the first case, although the operation came in three and a half hours in this and not until after twenty-four hours in the second case, the bleeding in the latter being intermittent Adhesions may check it, as these break up, more blood escapes An enlarged spleen ruptures more readily, in these cases the spleen weighed 160 and 280 gm In Berger's compilation of 168 cases, 50 per cent died within the first hour and 25 per cent between the second and the tenth

95 **Phototherapy of Tuberculosis in Danish Sanatoriums**—Hansen reviews the work being done with arc lights and mercury vapor lamps in the various sanatoriums, including the one in his own charge He soon abandoned the arc lamps as uncontrollable, and now works exclusively with the mercury vapor lamp The general impression is favorable for superficial accessible lesions but not for others

96 **Determination of Sugar Content of the Blood**—Rydgaard describes the technic with which it is possible to determine the absolute values as well as the relative in testing the sugar content of the blood He uses Bang's second micromethod—the uranyl acetate method—as this is more exact than the precipitation with salt solution method Even with the former, a number of minor technical points must be observed to get satisfactory results, as he describes in detail from his own experience In connection therewith he discusses the sugar content of the blood with slight glycosuria, citing some cases of the latter with diametrically opposite sugar content of the blood and clinical course He queries whether they represent different morbid entities or are merely various manifestations of diabetes mellitus In the one type the glycosuria was a casual discovery and it did not seem to depend on the diet, not increasing on a full diet and not decreasing on the antidiabetic diet, while the sugar content of the blood was within normal range and there was nothing otherwise to suggest diabetes In the case of the other type, the glycosuria responded promptly to dietetic measures but the sugar content of the blood corresponded to that of actual diabetes throughout the tests

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MECHANICAL DERANGEMENTS OF THE KNEE JOINT *

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Mechanical derangements of the knee joint are relatively common and may be due to either extrinsic causes such as exostoses, or to intrinsic causes such as fractured internal semilunar cartilage It is to the latter, which are the most difficult to diagnose, that attention will be drawn in this paper

ANATOMY

The knee joint is a hinge joint While nature was apparently most lax in providing bony reinforcements to the knee, she has been most ingenious in furnishing ligaments strong enough to take up the strains imposed In front is the anterior or big patellar ligament This has a ligamentous or tendinous attachment below and a muscular attachment above Its action as a true ligament, therefore, is not very great On the inner side is the internal lateral ligament, short, strong and fan shaped, with its narrow part downward, and having its deep portion intimately associated with the capsule and the internal semilunar cartilage The deep fibers, being short, keep the internal semilunar close to the condyles of the femur On the outer side the external lateral ligament extends from the external tuberosity of the femur to the head of the fibula, splitting the tendon of the biceps in its course This ligament has two divisions, a weak posterior part and a strong anterior part It is separated from the capsule of the joint by the popliteus tendon and the bursa found there The two lateral ligaments are the chief agents in providing against lateral mobility, the internal lateral preventing the knee from bending outward, and the external lateral preventing the knee from bending inward The rounded ends of the femur are buttressed, as it were, by the internal and external semilunar cartilages, and thus the lateral ligaments are aided in their function (Fig 1)

The internal semilunar cartilage forms a large segment of a circle and is less movable than the external
lag[illegible]steriorly it is firmly attached just in front of the
whi[illegible] is [illegible] crucial ligament Anteriorly it is less firmly
slide out, in front of the anterior crucial ligament
is more [illegible]y it has a firm attachment to the lateral liga-
However, a somewhat weak attachment to the tibia by
diagnosis [illegible]ary ligament
damage

The external semilunar cartilage forms a smaller segment of a circle Occasionally it is nearly a complete circle, there being only a small opening against the tibial spine, as in three of the 150 specimens examined by Tenney[1] The external semilunar is fixed anteriorly in front of the tibial spine, and posteriorly to the tibial spine between the tubercles, giving a strong slip to the posterior crucial ligament The attachments to the external lateral ligaments and the tibia are very weak The semilunar bodies are spoken of as being cartilaginous In reality, they are fibrocartilaginous, the thick convex part being largely fibrous tissue, and only the inner concave portion cartilaginous When this cartilaginous border is injured, small pieces of cartilage may become separated and loose The fibrous tissue is arranged transversely and longitudinally The longitudinal fibers may continue anteriorly across to the opposite cartilage forming the transverse ligament—an insignificant structure At the convex borders, the transverse fibers blend with the capsule The coronary ligaments are formed by these fibers below and are really only the portion of the capsule between the semilunars and the tibia

The anterior and posterior cru[illegible]nts are two very important internal ligaments The ant[illegible] from the front of the spine of the tibia near the anterior extremity of the external semilunar cartilage and courses upward, outward and backward to the inner side of the outer condyle of the femur The posterior arises from the back of the groove on the posterior side of the top of the tibia and from its outer border, leaving the floor of the groove and the transverse piece of the spine of the tibia free and covered by synovial membrane Here it is closely connected with the external semilunar cartilage and runs forward, upward and a little inward to the front of the outer side of the inner condyle of the femur and of the intercondylar notch (Piersol[2]) These ligaments greatly aid in the stability of the joint Griffiths[3] states that if the internal or external lateral ligament is divided and lateral bending is attempted with the knee extended, the bending allowed is considerable, but if the same is attempted with the knee in the flexed position no bending is allowed laterally He concludes, therefore, that inward bending of the knee joint is prevented in the extended position by the internal lateral ligament; and in the flexed position by the crucials In flexion the relaxation of the internal lateral ligament allows some rotation With the knee partially flexed, extension may pull on the anterior or upper part of the

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Mayo Clinic.
ore the Section on Orthopedic Surgery at the Sixty
al Session of the American Medical Association Detroit

[1] Tenney B The Anatomy and Surgery of the Internal Derangements of the Knee Joint Ann Surg 1904 **40,** 1

[2] Piersol G A Human Anatomy, Ed 4, Philadelphia, J B Lippincott Company 1913 **1,** 404

[3] Griffiths J Observations upon [illegible] Ligamen[illegible] and to [illegible] Brit [illegible]

internal lateral ligament and thus make some traction directly on the internal semilunar cartilage, there being a few fibers of the quadriceps inserted there This may explain why the anterior extremity of this cartilage occasionally becomes caught and ripped Jones[4] says experiments show that hyperextension of the knee is prevented by (1) the posterior crucial, (2) the anterior crucial, (3) the internal lateral ligament, (4) the external lateral ligament, and that increased extension is secured as one after another of these is divided Internal rotation is limited by the internal lateral ligament and the anterior crucial In external rotation the tibia may slip slightly forward on the femur but is stopped by the anterior crucial On internal rotation the tibia may slip back a little but is stopped by the posterior crucial

Mechanical derangements produced by intrinsic causes will be considered under the following heads

1 Semilunar cartilages
2 Loose bodies
   (a) Of intrinsic origin — chondral and osteochondral bodies
   (b) Of extrinsic origin — foreign bodies
3 Synovial fringes
4 Crucial ligaments

DERANGEMENTS DUE TO THE SEMILUNAR CARTILAGES

In the English medical literature there are many reports of large series of cases of damage to the semilunar cartilages, but those reported in the American literature are few This is accounted for largely, I believe, by the fact that the English, as a class, participate much more freely in vigorous pastimes such as football, Rugby, tennis, hockey, etc, than do Americans In America the clerk or laboring man seldom indulges in such pastimes, while in England he participates in them freely

As stated previously, when the knee joint is partially flexed a little lateral mobility is permitted This is due to the fact that the internal lateral ligament is relaxed As it slacks, however, the crucial ligaments take up their duties so that when the knee is at right angles, the lateral mobility is checked From 25 to 90 degrees' flexion is an arc of weakness, and it is in this arc that damage to the internal semilunar is most frequently inflicted According to Jones,[5] the most frequent cause of injury to the internal meniscus is strain thrown on the internal lateral ligament when the tibia is rotated outward while the knee is flexed In rare instances he has known it to occur when the knee was extended, but, as emphasized by Lane,[6] the internal fibrocartilage is injured in such cases only by great force In extension, the internal lateral ligament is taut and performing its function, and it must be torn before the internal semilunar fibrocartilage can be displaced In moderate flexion the crucials are not in a position to maintain stability, and the internal lateral ligament being slightly relaxed, some mobility of the internal semilunar is allowed On attempted extension there may be a slight pull on the anterior extremity of the semilunar cartilage by the prolongation of the quadriceps muscle inserted into that part of the capsule, and the cartilage may be caught between the joint surfaces and torn loose or possibly fractured as the leg is straightened Martin[7] states that damage to the internal semilunar is common among coal miners who stand with the knees more or less flexed in low seams (4 by 4½ feet) in the mines A review of our case histories has demonstrated that in the majority of instances the accident occurred with the leg partially flexed, the foot abducted and rotated outward, and force applied which caused the tibia to be rotated outward or the femur to be rotated inward, depending on whether the force was applied above or below the plane of the knee

Locking of the joint is followed by effusion The pain is often so severe as to make the patient cry out and fall to the ground, grasping the knee with both hands It is usually most severe at the primary locking, and lessens as the locking becomes more frequent, until by some patients the pain is complained of less than the mechanical obstruction blocking the extension of the leg The effusion may be considerable following the early locking, but as the lockings become more frequent the joint seems to accustom itself to the condition, and very little if any appreciable amount is noted In some cases the locking may not be distinct, the patient complaining only that "things do not feel right in the joint" A diagnosis of a damaged fibrocartilage should be made in such cases only after very careful examination and consideration The roentgenogram is of practically no aid, as in the great majority of instances the fibrocartilaginous body of the misplaced cartilage casts no shadow Occasionally in persons with a history of lockings extending over many years the irritation inflicted on a pedunculated end of the internal semilunar will so harden it that a faint shadow will show in the roentgenogram between the internal condyle of the femur and the tuberosity of the tibia In such cases, however, the history is usually so clear that the roentgenogram is not a necessary aid in the diagnosis Nevertheless, any patient with mechanical derangement of the knee should have the benefit of the roentgenographic examination, for it is impossible to differentiate in many cases between a misplaced or loose internal semilunar or external semilunar cartilage and a loose body The roentgenogram, therefore, may be considered as of the greatest aid in making a differential diagnosis

It must be constantly borne in mind that while the most frequent cause of mechanical derangement of the knee joint is an injured internal meniscus, other causes also may produce the derangement In some instances a diagnosis is extremely difficult before operation, and even after the joint is opened the cause is not evident Surgeons of great experience have acknowledged that occasionally after making a careful search for the condition causing the symptoms complained of, they have closed the knee joint without repairing or removing anything The removal of the internal semilunar cartilage must be decided from the findings

According to Lane,[6] periodic derangements of the knee joint may so lower the vitality of the joint tiss[illegible] that tuberculosis develops In his opinion the [illegible]ity of cases of tuberculosis of the knee joint [illegible]ontent as their predisposing factor, particularly in [illegible]othing who have intestinal stasis In this content[illegible]r type, supported by Jones,[4] who adds that th[illegible]es bu[illegible]f actual arthritis also may be so induced. I have seen a few cases of tuberculosis of the knee in which there was a history of mechanical derangements for some years preceding the onset of the tuberculous arthritis. Such a history, however, was the exception rather than the rule.

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[4] Jones R Notes on Derangements of the Knee, Ann Surg 1909 50, 969

[5] Jones, R Internal Derangements of the Knee Lancet, London 1914 2 297

six to twenty-th[illegible] [illegible]mon Injuries of the Knee Joint [illegible]

[7] Martin A M Discussion on the Diagnosis and Injuries of the Knee Joint Other than Fractures and Brit Med Jour 1913 2 1070

The treatment of derangement due to the internal semilunar cartilage is either nonoperative or operative. It may be taken as a rule that patients should not be operated on who give a history of only one locking. If seen immediately after the accident, reduction should be made at once. Complete extension, and the statement of the patient that the joint feels right, is evidence that reduction of the displaced cartilage has been effected. If the patient insists that the reduction is not accomplished, it is probable that he is correct. After successful reduction, rest in bed should be insisted on until the effusion has subsided. Flexion of the knee and strain on the internal lateral ligament should be prevented for six weeks. If the damaged cartilage is given the opportunity to unite firmly in its normal position, the chances for a cure are very good. If the primary care has been careless and the fixation period inadequate, the patient very often presents himself with a story of multiple lockings. In these old cases, operative interference is necessary, for rest and immobilization at this late time will not insure the fixation of the loose cartilage in its normal position. When operation is necessary for removal of the internal meniscus, the incision of choice is the condylar incision of Jones. It is not necessary to remove the entire cartilage, the anterior three fifths is usually sufficient. Damage to the internal lateral ligament may be avoided by limiting the incision and by leaving a thin rim of the fibrocartilage attached to the internal lateral wall of the joint. This can be done easily by using a tenotomy knife to separate the cartilage, thus avoiding the deep fibers of the internal lateral ligament.

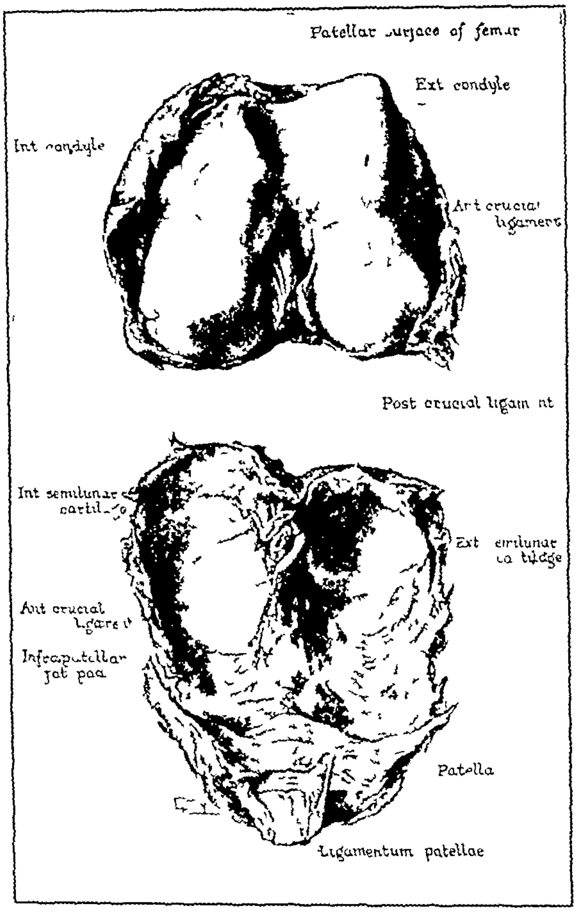

Fig 1.—Intrinsic structures of the knee joint.

In my series of cases there has been none in which we have found it necessary to remove the external semilunar cartilage. Jones[4] found it necessary to remove it in twenty-four cases, 7 per cent of his total. He explains the rarity of damage to this cartilage on the ground that, unlike the internal semilunar which is securely fastened by its ligaments and cannot slide out of the way of harm, the external semilunar is more loosely attached and thus escapes injury. However, it should be borne in mind when making a diagnosis that the external cartilage is not immune to damage.

LOOSE CHONDRAL AND OSTEOCHONDRAL BODIES

Relatively speaking, loose bodies of cartilaginous or osteocartilaginous consistency are common. They may be either free or pedunculated. Very often when the body is cast off from one of the articular surfaces a piece of spongy bone comes with it. As the body wanders about the joint it receives nourishment sufficient to permit the growth of cartilage until it is entirely covered. Then only by section of the body can the bone be demonstrated (Fig 2).

The etiology of loose bodies is interesting. It is generally conceded that a certain definite group have ostearthritis or Charcot's disease of the joint as their primary cause. This group, however, does not directly concern the surgical aspect of the subject, for in such cases the disease is more important than the mechanical difficulties, which are only incidental. The majority of loose bodies in the knee joint cannot be explained on these grounds, and it is this majority that is of the greatest interest. Whitelocke[8] believes that many of them have their origin in the fibrous tags that hang from the synovial membrane. He states that as the synovial membrane, articular cartilages and interarticular cartilages are developed from the same primitive embryonic intermediate layer of the axial blastema, these fibrous tags may readily develop into loose bodies of chondral nature. Koenig,[9] on the other hand, described osteochondritis dissecans as being the cause of loose bodies. Ridlon[10] and Freiberg[11] have more recently called our attention to this condition and reported cases. Briefly, it is supposed that the pathology causing osteochondritis dissecans is a blocking of one of the nutrient end-arteries supplying the joint surfaces, with a consequent desiccation of the localized devitalized area as a free or pedunculated body. Undoubtedly there are such cases. However, it is very difficult to estimate the amount of trauma that may be inflicted on a joint surface by the crushing force exerted on attempted extension of the knee by a curled or crumpled up semilunar cartilage. Owing to its fibrocartilaginous structure, the semilunar cartilage may itself escape any serious damage and yet severely injure the cartilaginous articular surface. In the majority of instances no history is to be elicited of a tendency to form loose bodies, but there is a history of direct injury to the internal condyle of the femur by falling on the flexed knee The injured area may be chipped off at the time, but more often the area of trauma is devitalized and later separates off and becomes a free body In the greater number of our cases of loose bodies in the knee joint we were able to demonstrate either by the Roentgen ray or operation that the bodies originated from the thick ridge of the cartilage placed on the internal condyle of the femur to compensate for the wear caused by the normal action of the joint (Fig 3)

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[8] Whitelocke R H A Loose Bodies in the Knee with Special Reference to their Etiology and Growth Brit Jour Surg, 1913 1914 1, 650

[9] Koenig F Ueber freie Korper in den Gelenken, Deutsch Ztschr f Chir 1888 27 90

[10] Ridlon John Osteochondritis Dissecans The Journal A M A Nov 15 1913 p 1777

[11] Freiberg A H and Wooley P G Osteochondritis Dissecans Concerning Its Nature and Relation to Formation of Joint Mice Am Jour Orthop Surg 1910 8, 477

The symptoms are catching or locking of the joint accompanied by pain and followed by swelling Repeated attacks generally tend to decrease the severity of all the symptoms Very often the patient is able to locate the body and thus establish the diagnosis The Roentgen ray in practically all instances discloses the presence of the body, as the cartilage is usually dense enough to cast a shadow, and in many instances a small flake of bone is attached to the cartilage which further aids in the localization The continued presence of these bodies in a joint causes continued irritation and is apt to produce arthritis They should be removed, therefore, but before operation care should be taken to locate them as accurately as possible After the preparation of the knee has been completed, it may be possible to localize the body in the suprapatellar pouch or at either side of the ligamentum patellae By holding the body between the fingers and infiltrating the skin with local anesthesia a sharp needle may be pushed through the skin into the body to hold it securely A small incision down the course of the needle then allows ready removal of the body More often, however, the body cannot be grasped in this manner and in such cases general anesthesia and an incision allowing the best approach to the body is necessary If the body rests in the anterior compartment of the joint and on the inner side, the incision on the inner side of the patella permits the easiest entrance When a more general exploration is necessary, the splitting of the patella as described by Corner[12] allows free inspection of the suprapatellar pouch and the anterior and interarticular areas of the joint If the body is posterior, the incision described by Brackett and Osgood[13] through the popliteal space is the most convenient The mere presence of a loose body in the posterior part of the joint does not demand its removal Moreover, it should be remembered that occasionally there are sesamoid bones in the hamstrings that are extremely difficult to differentiate A sesamoid bone may have a concave surface that fits the convex posterior surface of the condyle of the femur, whereas the loose body, because of its wandering, does not have the shape of its location impressed on it, and is often rounded or oblong Stereoscopic roentgenograms may show whether the body casting the shadow is resting directly on the condylar surface or is located in the intercondylar notch If in the intercondylar notch, it is presumably a loose body, but if resting on the condyle it probably is a sesamoid

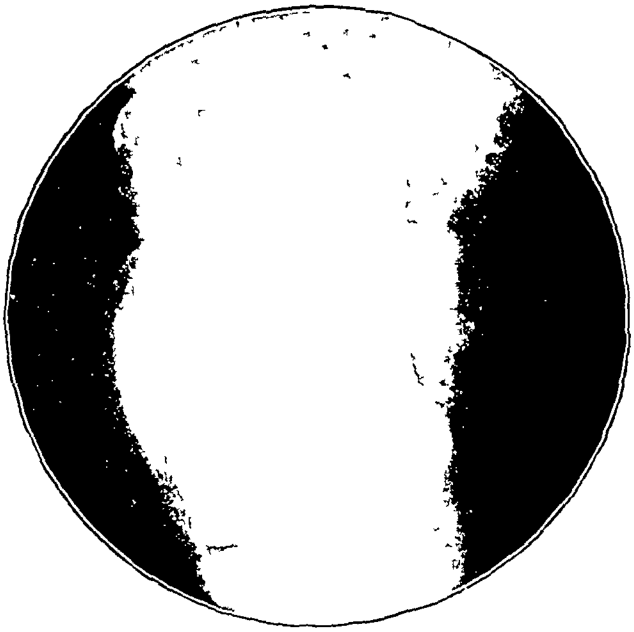

Fig 2 (116019) —Anteroposterior view showing loose body at site of origin in internal condyle of the left femur

FOREIGN BODIES

Foreign bodies cause derangements but differ from the previous groups mentioned in that they are of extrinsic origin, being introduced accidentally or intentionally from without In the literature, needles are mentioned frequently as a finding In some instances the patient is not aware of the introduction of the needle Malingerers occasionally introduce needles in the knee joint, and the clinical picture is baffling until a roentgenogram is taken Bullets may enter the joint and be remarkably well tolerated The presence of a foreign body in practically all instances demands the same operative measures as mentioned for the loose cartilaginous bodies, except that the demand for its removal is even more urgent

SYNOVIAL FRINGES

Synovial fringes or fat tags occasionally cause mechanical derangements, but the symptoms are usually mild The condition may be due to mild tuberculosis or to some systemic disease, such as syphilis These facts, together with the mildness of the symptoms, usually contraindicate operative interference Such tags, as a rule, have their origin on the alar ligament or the fat pad extending on either side of the patellar ligament Occasionally during the course of an exploration of the joint I have removed a pedunculated flattened fat tag which looked as though it were being habitually squeezed by the articular surfaces However, that the fat tag may be the sole cause of joint derangement has not in our cases been shown to my satisfaction Painter and Erving[14] have called attention to the possibility that fat tags may cause symptoms, and have reported cases

THE CRUCIAL LIGAMENTS

The results of rupture of one or both of the crucial ligaments are more serious and disabling than those of what are generally understood as mechanical derangements of the knee joint Their cause is severe trauma, such as that resulting from the passing of a wagon wheel over the leg If after an injury with the knee in an extended position the tibia can be pushed forward, the anterior crucial is ruptured If, with the knee in flexion, the tibia can be pushed backward, the posterior crucial is ruptured The pain caused by such extensive manipulations usually necessitates an anesthetic The spines of the tibia may be broken in addition, and occasionally give rise to loose bodies For ruptured crucial ligaments, Corner has advised operative measures However, when the knee is properly treated from the onset by placing it at rest in slight flexion in a plaster of Paris cast and maintaining such fixation for three months, a useful knee results It is tersely stated by Jones and Smith[15] that "modern practice pays not enough attention to the fact that a ruptured tendon or ligament must not be subjected to strain during the period of healing" Use of an injured knee should be permitted only after careful examination According to these authors, in a case of rupture of both crucials, conservative measures of rest for three to six months promise better results than immediate operation It is astonishing to what extent, particularly in the young, a knee with relaxed ligaments will regain stability if a suitable brace is provided to prevent strain on the stretched ligaments

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[12] Corner, E M The Surgery of the Knee Joint The Journal A M A, Sept 26, 1914, p 1069

[13] Brackett, E G and Osgood, R B The Popliteal Incision for the Removal of "Joint Mice in the Posterior Capsule of the Knee Joint Boston Med and Surg Jour 1911 **165**, 975

[14] Painter C F and Erving W G Lipoma Arborescens, Boston Med and Surg Jour 1903 **168**, 305

END-RESULTS

The cases forming the basis of this report number eighty-seven They were all under observation in the Mayo Clinic during the interval between Jan 1, 1910, and Jan 1, 1916 As many of the patients as possible have been seen or communicated with since their operation, to ascertain the end-result of the treatment accorded them There were sixty-three males and twenty-four females The youngest was 14 years of age, and the oldest 67 The average age was 32 years

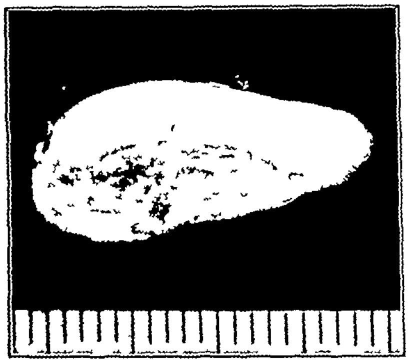

Fig 3 (147988) —Cross section of loose body showing cartilage grown around the bone × 2¼

The internal semilunar cartilage was judged to be the sole offender and removed in fifty-three cases We were able to trace forty-four of these patients Thirty were cured, nine were relieved and five reported themselves as no better It is probable that a few of the nine reporting themselves as merely relieved may be considered cured, for in some instances their reasons for stating that they were more or less dissatisfied with the operation were indefinite However, as the opportunity to make the examinations and observations necessary to refute their statements was lacking, they have been classified as merely relieved The five patients reported as no better were cases in which at operation no definite pathology could be established and the semilunar was removed on insufficient pathologic evidence In the majority of these cases it would have been better to have at least deferred operation Five patients we were unable to trace The internal semilunar cartilages were removed from eight knees at the same time that loose bodies were removed In the majority the loose bodies were the prime cause of the trouble All of these patients reported themselves as completely cured In twenty-four instances, loose bodies were removed from the knee joint when they were considered to be the chief offenders Sixteen patients reported themselves as cured, five were not traced, and three were relieved The latter three cases were those of elderly people who had arthritis associated with the condition Undoubtedly much of their present complaint is due to that

Two cases of rupture of the crucial ligaments were treated conservatively by placing the knee slightly flexed in a plaster of Paris cast Full function was restored

To sum up, fifty-six of the eighty-seven patients operated on for mechanical derangements of the knee due to intrinsic causes were cured, twelve were relieved, five reported themselves as no better, and fourteen were not traced

CONCLUSIONS

1 Damaged semilunar cartilages should be accorded the careful treatment by rest and fixation that is given an ordinary fracture of one of the long bones Recurrent locking will then be an uncommon sequela

2 Recurrent locking produced by a loose or fractured semilunar cartilage or loose body demands removal of the meniscus or body under the strictest asepsis A judicial exploration, of the joint should be made at the same time

3 The condylar incision is the incision of choice for the removal of the semilunar cartilages

4 For the removal of loose bodies, the split-patella incision is usually best

5 A ruptured crucial ligament is better treated conservatively than by operation

ABSTRACT OF DISCUSSION

Dr John Ridlon, Chicago I agree entirely with all that Dr Henderson said, but I would like to say that in injuries of the knee joint in which the semilunar cartilage may have been injured, it is most important to put the leg straight in a plaster cast and keep it there until all symptoms have been absent for a long time If symptoms return without there having been an accident, it is necessary to go into the joint, unless some reason otherwise is shown I think that we are going to find a lot more cases of osteochondritis dissecans than heretofore When I published my paper I reported three cases Before that Dr Freiberg's case was the first, and I think the only one in this country, and my three were the next The cases are not common Dr Henderson has been able to show a number probably because he knew what to look for We have had an unusual case since the publication of my paper A young woman presented the typical Roentgen-ray pictures of osteochondritis dissecans in both knees On opening the right knee we found the cartilage of the inner condyle blistered up, but no loose body In the left knee we found the cartilage in the same condition and a loose body, biscuit-shaped, 1⅛ inch in circumference and one-fourth inch thick. This was removed A year later the Roentgen-ray pictures showed a loose body in the right knee another spot of osteochondritis dissecans in the left knee and another loose body in that joint

Dr J P Lord, Omaha About twelve or fifteen years ago Dr W J Mayo called attention to the advantages of a transverse incision of the knee for extreme infections of the knee joint Having had experience in opening the knee thus freely with very desirable results, and regarding it as not of serious consequence, I used this method of exposure in one case with highly gratifying results in which the patellar tendon was divided and the knee joint widely opened, wh enabled me with great facility to remove the foreign bod

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[15] Jones R, and Smith S A On Rupture of the Crucial Ligaments of the Knee and on Fractures of the Spine of the Tibia, Brit Jour Surg 1913 1914 1, 70

They were very large and eight in number, one being nearly 2 inches in extent, and of a mulberry type Part of these bodies were well behind the condyles, and it had seemed to me that no other incision would have been adequate to have made an assured success of their removal without, perhaps, more exposure and damage than there was in the very radical procedure of opening the joint in the manner described I do not pretend to say that this is very often indicated

Dr W C Campbell, Memphis, Tenn Dr Henderson stated that he has not removed a single external cartilage during all the series A few days before I left I removed the external cartilage from a man who gave a very interesting history He had three days previously a sudden locking of the knee, which had caught at a greater angle than I had ever seen It was fixed and held at a right angle Six or eight years before, he had had a number of attacks, and then, without treatment, they had stopped, and he has had no trouble for three years He had always before been able to straighten the knee after a few hours This time, however, he was unable to do so He was brought to me with the knee flexed at about a right angle and fixed in that position I insisted on taking him to the hospital and doing an operation to get the leg down, if he could not reduce it otherwise He refused treatment or operation, so he went home and stayed there ten ays Then he came back with no improvement in his con[illegible] There was practically no effusion in the joint when joint was opened The knee was freely movable in flexion yond the point of locking On operation, I found that the external cartilage was so long that it was folded on itself in the joint I removed it by the usual external incision

Dr Robert B Osgood Boston I agree in the main with Dr Henderson, but I think that it is a mistake to consider this semilunar cartilage problem a simple one or to be dogmatic about the operation I understood him to say that we should take three fifths of the cartilage away I am not sure that that dictum is wise because I have seen certain cases in which perhaps three fifths have been removed, and in which the symptoms of slipping did not return, but the symptoms of riding up over the end of the cartilage left did occur, and seemed to be overcome by an operation which secondarily removed the posterior portion of the cartilage More than that cartilages are often found, in my experience, not simply detached in their anterior portion, but sometimes quite extensively detached along their whole border The flopping inward and outward gives rise to the symptoms It would be, in such cases, obviously unwise to remove simply the anterior portion They are sometimes split longitudinally as if cut with a knife from one end to the other I have found this a number of times, the internal, or joint, side being free, and the other side attached to the coronary ligament It would obviously be unwise to remove simply the anterior two thirds in such a case as that These are problems which demand an exposure of the whole site and the condylar incision, which Dr Henderson advises is the best I take him to mean an incision that is longitudinal in its upper portion and then sweeps backward at the level of the joint line At the Massachusetts General Hospital clinic during the last year we have had two cases of external cartilage, as well as internal

Dr Edwin W Ryerson, Chicago Dr Osgood's point about the removal of the whole cartilage is excellent If you are going to remove any, why not take out the whole thing? The operation is easier with the leg flexed at a right angle on the edge of the table Then the leg can be rotated around, so as to reach the posterior end of the cartilage The anterior end can always be removed easily The other end can be snipped off with a pair of strong curved scissors Loose bodies are sometimes extremely annoying If you get into the joint without having first transfixed the loose body you sometimes cannot find it even with a wide opening It is possible to take it out under local anesthesia in most cases In one case in which I was operating under a local anesthetic I could not find the loose body, which was as large as the end of the thumb The man said, "I can find it for you", so we put a pair of sterile rubber gloves on his hands, and in a minute he squeezed out the loose body, which flew on to the floor Another point about the transverse incision is useful Do not make too long an internal incision I saw an incision 7 inches long made by a surgeon in Chicago It is only necessary to make a short incision, the perpendicular part being an inch and a half long, and the transverse part about 2 inches, as described by Robert Jones I want to report another case of external semilunar cartilage fracture caused by a man being struck by the lower step of a train It made a great deal of trouble for the patient until the cartilage was removed

Dr J T Watkins, San Francisco I understood Dr Henderson to say that he would not operate when the rupture of a semilunar cartilage occurred the first time I think it would be right to qualify that statement according to the occupation of the individual For instance, twice during the last year, once in a painter and once in a carpenter, I had to attack the semilunar immediately I felt that I could not send the man up on a scaffolding with the knee in that condition, because a recurrence might mean his death by a fall Mr Jones, in his classical monograph, warns us that we may find all the symptoms at the inner or the outer side of the point only to find at operation that the other was the one involved I had that experience last winter I went in and found that the semilunar on the side where the patient gave all the classical symptoms was as good as any one's, and then discovered that the cartilage of the other side was the torn one

Dr Melvin S Henderson, Rochester, Minn Dr Lord mentioned the transverse incision I have not used it except in resections of the joints, but see no reason why with proper care, avoiding the lateral ligaments, it should not be used in cases such as Dr Lord speaks of Dr Campbell has mentioned the damage to the external semilunar cartilage To me this is very interesting because in our series we have not had such a case It may be that we have overlooked the condition in some of our cases Dr Osgood s criticism is a just one—in the part of the paper I have read I have not mentioned much about the internal semilunar cartilage as I found it necessary to reduce the paper in order to read it in the allotted time Some of the points mentioned by Dr Osgood have been taken up in the fore part of the paper I believe that the removal of the anterior three fifths of the semilunar cartilage in the majority of cases is sufficient Of course, if the fracture is further back it must be removed back of the fracture One reason for advocating this is that a larger incision is necessary to remove the entire cartilage and in using the larger incision one is apt to damage the internal lateral ligaments and it is best to avoid this as much as possible Dr Watkins mentioned not operating the first time the derangement occurred If the reduction cannot be accomplished otherwise, of course, operation is necessary Such a case was that mentioned by Dr Campbell in which he was unable to reduce the dislocation and found it necessary to remove the external semilunar cartilage in order to straighten the leg

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Food Values and Appetite—Not all food materials are valuable in proportion to the appeal which they make to the appetite For example, the flavor substances in foods which stimulate the olfactory and gustatory nerves, and thus give rise to appetite, are not ordinarily the substances on which the body depends for its fuel, nor for the great bulk of its building materials The latter materials—proteins, fats or oils, and carbohydrates—when chemically pure, have little or no taste or smell The preference for thin and crisp rather than greasy bacon is an illustration In a recent experiment it was found that of the 129 calories which represented the fuel value of a very thin 20 gm (three-fourths ounce) slice, only nine calories remained when the slice was sent to the table, 120 calories being represented by the fat which "fried out" into the pan In this case a considerable amount of flavor body also goes into the fat, yet most persons would not consider eating it unless it has been skilfully blended with large quantities of other foods, whereas the scrap of skeleton tissue which has lost 93 per cent of its food value is a dainty morsel—Minna C Denton, *Scientific Monthly*, December, 1916

RESULTS OF RESEARCH ON CONDITIONS AFFECTING POSTURE*

HENRY LING TAYLOR, M D
NEW YORK

Much has been said and well said on the importance for health and efficiency of straight standing and sitting, and on the deleterious effect on posture of weakness, poor health, overwork and certain types of physique

The effect of extrinsic conditions, such as clothing, furniture and certain features of family, school and industrial life on habitual posture, are also important In order to study such matters more closely and to improve personal and environmental conditions affecting posture, the American Posture League was organized three years ago by a group of physicians and educators, and this paper aims to present some of the results of work done by its technical committees, or officially approved by them

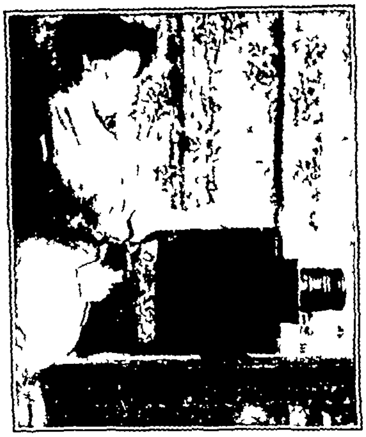
Fig 1 —The Mosher Lesley schematograph

Broadly speaking, a good basic standing posture is one in which the different segments of the body, head, neck, chest, lower trunk and legs are balanced nearly vertically on each other like a column with its base, shaft and capital

The posture of the standing figure may be tested in side view by comparison with a vertical line passing through the ear In order to illustrate good posture and contrast it with a relaxed and with an exaggerated posture, the league has issued two wall charts of a girl and boy, respectively, illustrating the three attitudes in side view These charts have been widely used in class rooms, physicians' offices and families, and have proved their practical value

A new method of recording posture is furnished by the Mosher-Lesley schematograph, a camera-like apparatus which reflects the figure much reduced in size on a horiztontal glass plate over which a sheet of tracing paper is stretched On this the outlines of the figure may be traced in front, side and rear views, if desired, and preserved for record or comparison with subsequent tracings The outline of the figure may also be traced in other postures

The effect of various postures on the position of the internal organs, especially the stomach and colon, has been studied fluoroscopically by one of the league's technical committees, which reported that in normal subjects standing, the fatigue posture, and also the lordosis posture lowered the abdominal organs, the erect posture invariably raised the organs from 1 to 3 inches Breathing with chest up, especially with contraction of the abdominal muscles, raised the organs 1 to 5 or 6 inches Ordinary deep breathing had little effect on the organs The recumbent posture usually elevated the organs from 1 to 4 inches

The conclusions of the league's technical committee on shoes are of general interest, and it seems to us of great importance A preliminary investigation failed to show any exact anatomic basis for the prevailing shapes of lasts, and it was decided that a study to determine whether average feet were of one or several types was necessary before the subject of shoes could be intelligently attacked It was also seen that the ground plan of the foot should be a determining factor in the ground plan of the shoe A call was sent out to the membership of the league for tracings of average feet, with other data, and 1,422 answers were received from various parts of the United States, India and China In order to determine the relation of the front of the foot tracing to the heel, the more stable part, the tracing of the heel was bisected longitudinally and the axis thus found was prolonged to the front of the foot In order to do this conveniently, a simple instrument called a foot meter was devised This consists of a piece of transparent celluloid, 7 by 13½ inches, on which a central line is drawn, with parallel lines at equal distances on either side giving the distance in quarter inches from the central line This central line is so applied to a foot outline as to bisect the heel, when the distances of the outline at the ball from this axis on the outer and inner side may be read off from the foot meter

Studied in this way, the foot tracings were divisible into three types (1) those in which the heel axis prolonged forward divided the ball equally to within less than a quarter of an inch, these were called straight feet In other tracings (2) the larger part of the foot at its widest part fell to the outer side of this axis, these were called outflared feet In still a third class of tracings (3) the larger distance from the heel axis lay to the inner side, these were called inflared feet

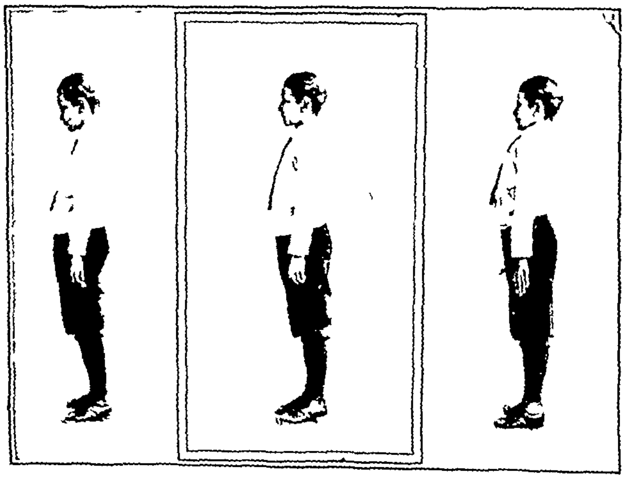
Fig 2 —Standing postures

In 1,131 tracings of American adults, dropping fractions, the following percentages were shown straight feet, 30 per cent , inflared feet, 14 per cent , outflared feet, 56 per cent The percentage did not greatly differ in men and women We have nearly a hundred tracings of American children under 11, but are collecting more, especially of the younger ages, for special study

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

One hundred and seventy tracings of the feet of Oriental adults from China and India, many of whom have never worn shoes, showed the three types of straight, outflared and inflared feet as in shoe-wearing Americans, though the percentages of the three classes are different Leaving out fractions, the 170 were divided as follows straight feet, 36 per cent , inflared feet, 38 per cent , outflared feet, 26 per cent

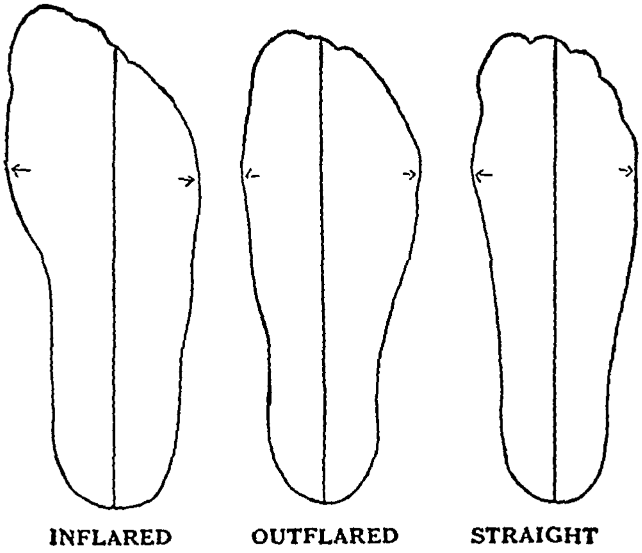

Fig 3—The three types of feet established by studies of the American Posture League

A further study of these tracings, especially as to the effects of barefootedness and laborious occupations on the type, is now in progress Since the ground plan of the foot may be straight, inflared, or outflared, it follows that no one type of shoe will fit all feet Shoes are now being constructed over lasts of the three types, designed by a technical committee of the American Posture League, and will soon be on the market These shoes not only have been designed with reference to the anatomy of the foot, but also have been made as light and attractive as was compatible with their intended use

Other technical committees have laid down principles and effected reforms in the construction of ready made coats, and in garment suspension It was found that many ready made coats for men and boys were too narrow in front and too loose behind because made over a round-back model Such coats virtually compel poor posture This was taken up with a large manufacturer, and the coats were remodeled to proper shape

The weight of garments should be suspended from the shoulders near the neck, and from the pelvis above the hips, the shoulder tips and waist should not bear the weight of clothing Waists and garters have been designed on these principles

The Furniture Committee, having no apposite anatomic data, sent out a questionnaire to members on certain measurements of the adult clothed figure, and based its work on chairs and seats on a study of these measurements and other experimental data In hygienic seating the feet, thighs, pelvis and spine are comfortably supported in proper relation to each other Pressure on the popliteal region, and outer part of the scapulae and shoulders is avoided Support to the back is given mainly in the upper sacral region, and lower half of the dorsal region The chair floor is shaped to distribute pressure, and to prevent the pelvis sliding forward A large space is provided at the lower part of the chair back, so that the buttocks may not be pushed forward The chair back should be flat from side to side, or only slightly hollowed, so that the shoulders and scapulae may not be pushed forward The slope of the back and other features vary with the use for which the seat is designed, the back being more reclined in chairs designed for resting

Seats have been worked out for the new subway cars of the Brooklyn Rapid Transit Company and are now in use A standard movable school chair and desk have been remodeled and have given great satisfaction in use Kindergarten and vocational chairs have been designed, and several models of office chairs have been remodeled on scientific lines A child's seat for baby-carriage and automobile has been designed from anatomic measurements

Reading, writing and drawing on a flat surface exert a pernicious influence on posture and often produce eye strain When the book or drawing board is held at a moderate slope from the vertical, the easel position, the posture is improved and eye strain relieved An adjustable book rest has been devised, which holds the book or drawing board at the angle of choice and at the proper height

A design for a sloped library table for reading has just been sent in for the league's inspection Such tables have been in successful use in the children's department of the Cleveland Public Library

Much information and material tending to greater comfort and convenience and the betterment of posture conditions are being continually presented for the consideration of the league, which acts as a clearing house for all such matters Material officially approved bears the league's label

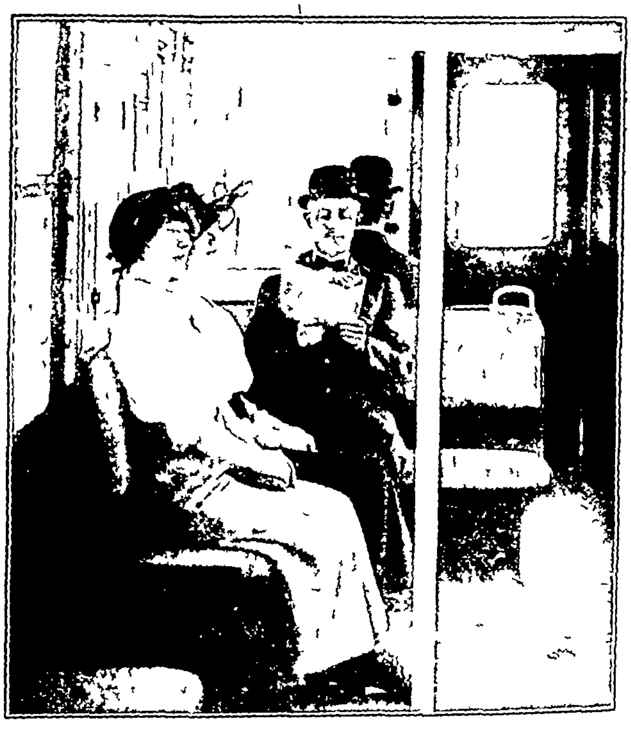

Fig 4—Anatomic subway car seat

The foregoing is a very brief summary of a few of the things actually accomplished by the different technical committees, and the interest and scope of the work are constantly increasing

The scientific standardizing of wearing apparel, furniture and the various appliances used by the worker makes a special appeal to the orthopedic surgeon, but should also interest the practicing physician and the general public

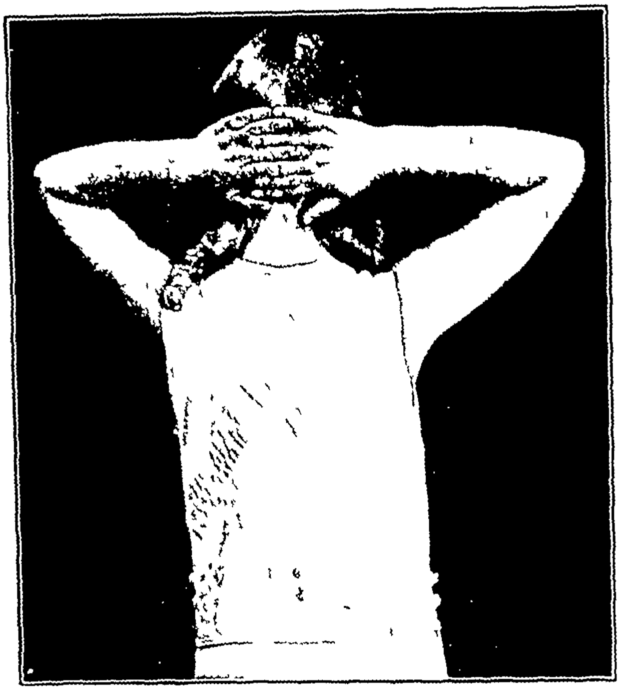
Fig 5—The rest right waist

The league's scientific exhibit at this meeting shows the scope and quality of the work already done better than any description The cooperation of all in this work whose benefits are shared by all is cordially invited

125 West Fifty-Eighth Street

ABSTRACT OF DISCUSSION

Dr Joel E Goldthwait, Boston To mold the human body is important if we are to develop the best efficiency of the individual If we allow the increasing number of slender individuals to grow up as they are, we shall have an increasing number of men and women to stand as the figure that Dr Taylor showed You can see hundreds of them No one needs to be a physician to glance at such a figure and know that it is not a healthy body and not an efficient creature If we are to treat these people we must appreciate the different anatomic forms that make it possible for one person to have one type of back, and another person another, and we must try to find out the cause of the difficulty from which each suffers If we think of our patients in that way we can do much to help them We can visit factories where people are employed, we can show them how to arrange things better Not only should we see that proper seats are provided, but we should also see that the people using them understand how to adjust them properly themselves Then there would be less backache and pulmonary disease, which must come primarily from the fact that the body is so used that the parts cannot work without strain

Dr Malcolm C Rose New York For a number of years I have taken the simple precaution of asking people to take two minutes' exercise night and morning in their bedroom, without clothing The object of not having clothing on is to give freedom of movement and that they may see how they are holding their body Tell them to put their knees back it will bring out the center of the chest, tell them to take two minutes' exercise in the room, and they will tell you within a short time how they have improved in general feeling the way they carry themselves

Dr Eliza M Mosher, Brooklyn, N, Y The relation of habits of posture to health is much more intimate than is usually supposed Two bad habits of posture are the "sidewise slouch" and the "heel postures" We all recognize the importance of free rib movement, especially that which maintains a constant interchange of gases at the apexes of the lungs The fact has been established that tuberculosis usually begins at the apex of the lung in which from any cause there is lowered movement of tidal air during the daily activities of life The "sidewise slouch' posture can easily be shown to be one that mechanically limits rib movement on one side of the chest, especially in its upper part It happens in this wise the lax everted leg, instead of a support, becomes a weight which drags the pelvis down lowering of the hip on one side means a proportional elevation of the opposite hip This change in the pedestal of the trunk would unbalance the body if other weights were not moved over to enable it to regain its equilibrium The weights moved are the shoulder and arm of the opposite side and generally the head In doing this the spine assumes a long lateral curve with its convexity toward the high hip and low shoulder These changes in the shape of the bony skeleton necessarily cause approximation of the ribs on the side of the supporting leg—which is almost invariably the right, and separates the ribs on the side of the low hip and elevated shoulder With ribs thus posturally separated the inspiratory muscles are helpless (to raise them) as also are the muscles of expiration to draw them down Hence the movement of tidal air is inhibited more or less completely In an examination of a large number of tuberculous patients I have almost invariably found the "slouch" habit of posture present and the disease beginning on the side of the low hip and high shoulder While the so-called 'heel posture" produces round shoulders and flat chest it does not greatly interfere with the movement of air in the chest Its malign influence is exerted on the abdomen and its contents The shutting down of the ribs on the upper abdomen shortens the distance between sternum and pubis, thus lessening the activity of the abdominal muscles and crowding the viscera downward This usually produces enteroptosis sooner or later with the setting free of its fateful brood to injure the body in all its parts The American Posture League bespeaks the cooperation of all physicians in its efforts to correct and standardize the things in our environment that tend to produce incorrect habits of posture and to measurably improve public health thereby

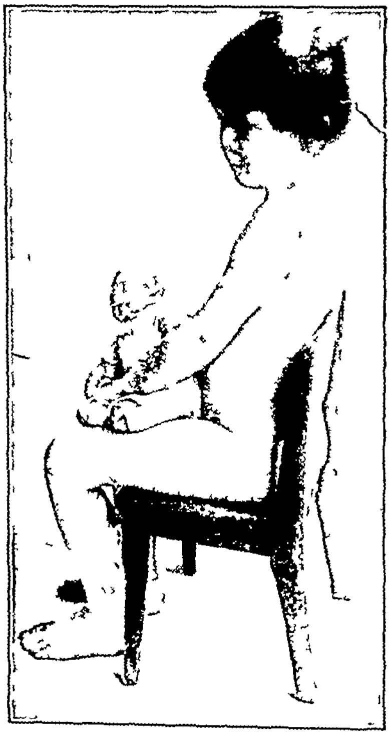
Fig 6—Anatomic kindergarten chair

Dr E S Everhard Dayton, Ohio What constitutes correct posture has been largely a matter of individual opinion Each orthopedic surgeon, each director of physical culture and each general practitioner interested in it has his own idea In the correct posture a line through the head and neck in front of the ear is vertical, one from the middle of the shoulder down through the trunk is vertical, and one from the middle of the trunk through the legs is vertical This is known as the vertical line test for posture It is valuable because it gives a standard There are three types of feet, the "inflared," the "outflared" and the straight If we put an "inflared" foot into an "outflared" shoe, we cannot expect good results

Dr Roland Meisenbach, *Buffalo* To establish the correct posture is by no means a simple problem The work of establishing correct attitude, as Dr Taylor is doing, is certainly commendable Faulty attitude, like ptosis, cannot be corrected dogmatically There are several reasons for this In the first place, the variation in the anatomy of individuals must be taken into consideration, also the frequent occurrence of disease, as, for instance, rickets, especially in children, must be considered, likewise the flat back and the lordotic back In regard to the sitting posture, I believe the time will come when we will have to conform our chairs to the individual rather than the individual to the chair This is especially true in schools, and in special schools

Dr S A Knopf, New York People who are subject to tuberculosis should not only be taught how to walk straight but how to breathe properly and deeply I should like to see children enabled to sit comfortably, particularly in schools, on properly adjusted seats and at desks of the right height, and above all, *they should not be obliged to sit quietly* without moving for too long a time It is an awful task for a youngster to sit for three quarters of an hour without wriggling It is very sad to see so many children become subject to tuberculosis who have no tendency either by heredity or by reason of early infection but because they have been confined altogether too long in badly aired and often overheated schoolrooms and obliged to sit in an unnatural posture and with but a few minutes' recess and often only in a dusty indoor playroom Let it be understood that no matter how good the posture, if it is maintained too long without change and the air is not fresh good and pure, it cannot be productive of good To still further develop good, sound lungs and increase the vigor of the children, I would like to see singing recitation, botany and geology taught out of doors as much as possible I firmly believe that in this way you can do much to diminish tuberculosis in childhood A recent study on the period of life at which infection from tuberculosis takes place most frequently has convinced me more than ever that if we wish to combat tuberculosis successfully we must begin to prevent and cure it during childhood If we do this at the right time, at the right place, and in the proper manner, we cannot fail to be successful

Dr Henry Ling Taylor, New York This is merely one aspect of the great movement for better hygiene I am quite in sympathy with what Dr Knopf said School hygiene and industrial hygiene are both in great need of reformation, but we cannot expect, by simply giving an employee a good chair, to effect a hygienic reformation in him, when he is, perhaps, underfed and underpaid

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Appendicitis in Prussia—The *Medizinische Klinik* gives the statistics in regard to *Blinddarmerkrankungen in Prussia* during 1913 While in 1912 there were 1,888 deaths from *Blinddarmentzundungen* in the various medical institutions, in 1913 the number was 2,185 Operative treatment was applied in 63 99 per cent and 5 11 per cent of the patients died The mortality was only 3 47 per cent among the women, and 5 61 per cent among the men, but the mortality in the operative cases was 6 69 per cent among the men and 3 86 per cent of the women About 56 per cent of all the cases occurred in persons between the ages of 15 and 30 The mortality was highest in the elderly, 130 died of the 390 elderly patients given operative treatment, out of a total of 664 elderly patients

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CONTRIBUTIONS TO THE PHYSIOLOGY OF THE STOMACH

XXXVIII GASTRIC JUICE IN DUODENAL AND GASTRIC ULCERS *

LESTER R DRAGSTEDT, M S
CHICAGO

The present work was undertaken to learn the effect of gastric juice on the rate of healing of acute gastric and duodenal ulcers It is well known that lesions of the gastric and duodenal mucosa heal readily in the presence of active gastric juice Small abrasions of the stomach mucosa, such as those following at times the administration of a stomach tube, are common, occasion no discomfort to the individual, and in a majority of cases heal without further sequelae Surgical operations in which there is a maximum insult to the mucosa cells are not commonly followed by untoward effects due to the digestive activity of the gastric juice

Nevertheless, up to the present, the medical and surgical treatment of gastric and duodenal ulcers has been based essentially on the theory that the gastric juice induces chronicity of these ulcers by digesting the exposed edges of the mucosa This is a point of great practical as well as of theoretical importance If pepsin—hydrochloric acid—has so great a digestive action on the injured mucosa that it maintains ulcers for months and even years, this fact ought to be readily demonstrated in well controlled laboratory experiments, where one can eliminate most, if not all, of the undetermined factors that unfortunately complicate results on patients

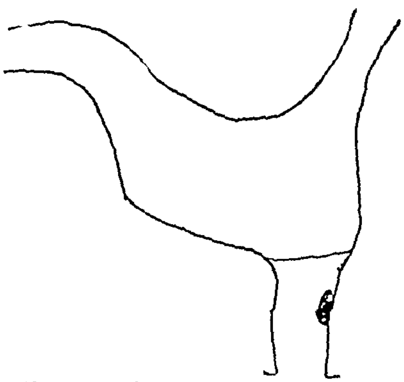

Fig 1 —Pawlow pouch arranged to secure maximum drainage of gastric juice

The clinical and experimental literature with reference to the role of gastric juice in the healing of ulcers is vast and conflicting Sippy[1] states that under medical treatment consisting of rest in bed and the feeding of alkalies and highly nutritious foods at frequent intervals, the healing of gastric and duodenal ulcers is markedly accelerated Here it is not evident that the neutralization of the gastric juice is the important factor, as, according to some authorities (Osler[2]), a treatment consisting solely of rest in bed and easily digested foods gives favorable results Inaccurate diagnosis is at least one important factor in explaining the apparent cures of gastric and duodenal ulcers under medical treatment In 264 cases of gastric ulcer operatively demonstrated at the Mayo Clinic, 1913-1914, there was an error in the primary diagnosis in 33 per cent There was an equally high percentage of error in 814 cases of duodenal ulcer[3] These cases were severe enough to indicate surgical intervention, and in such cases the diagnosis is more accurate than in the less severe forms

The good results, reported after gastro-enterostomy for pyloric duodenal ulcers, must be carefully scrutinized in view of the work recently reported by Boas[4] Examination will frequently reveal occult blood in patients apparently cured by the operation, in whom there is absence of pain and other subjective symptoms As suggested by Carlson, the relief from pain following the administration of alkalies or following gastro-enterostomy may be due to other factors than the effect on the gastric juice Burge[5] regards the digestive action of the gastric juice together with decreased resistance or oxidative properties of the mucosa cells as the causative agents in gastric ulcers Bolton[6] gives a number of experiments in which artificially produced hyperacidity delayed the healing of experimental ulcers in rabbits The degree of acidity employed by Bolton is far in excess of that found normally in the rabbit, and from the work of Hardt[7] and others there is considerable doubt whether there is an actual hyperacidity in cases of gastric or duodenal ulcer The experiments of Friedman and Hamburger[8] are not very conclusive on this point Their results indicate pyloric stenosis with consequent food retention in the stomach and hypersecretion of gastric juice as the important factors in the delayed healing of gastric ulcer So many others factors are involved in their experiments that the effect of the gastric juice alone in determining the chronicity of ulcers is not evident E C Rosenow[9] has produced acute and chronic ulcers in the stomach of dogs by the injection of certain strains of streptococci, obtained from the depth of gastric ulcers in man He has also shown that gastric and duodenal ulcers in man are usually infected, that the route of infection is by way of the blood stream, and that the primary focus of infection may be in some distant part of the body The importance of the difference in virulence of different species and strains of bacteria and the possibility of reinfection from the primary focus, as important factors in determining the chronicity of ulcers, have not been sufficiently considered No work accurately controlled has as yet been reported showing the relative rates of healing of acute lesions in the stomach and duodenum both in the presence and in the absence of active gastric juice

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* From the Hull Physiological Laboratory of the University of Chicago

[1] Sippy B W Gastric and Duodenal Ulcer The Journal A M A May 15 1915 p 1625

[2] Osler The Principles and Practice of Medicine 1914 p 496

[3] Foss H L Ann Surg, 1916 64, 39

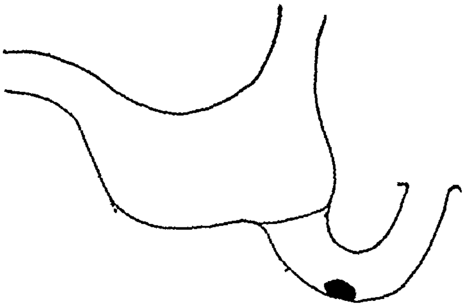

Fig 2 —Pawlow pouch arranged to secure retention of gastric juice in the pouch

EXPERIMENTAL PROCEDURE

1 *Preparation of Experimental Animals* —Healthy dogs were selected for the experiments and were prepared according to the following technic In one series of four dogs, the regular Pawlow operation, for producing a second small stomach, was done and the pouch brought to the surface through the left rectus muscle In this case the axis of the pouch was perpendicular and there was an optimum condition for drainage of the gastric juice secreted in the small stomach (Fig 1) In another series of four dogs the Pawlow operation was performed, but in this case the pouch was brought to the surface high up on the left side just below the costal margin (Fig 2) Here the outlet was the highest part of the pouch, and, as a result, the gastric juice secreted could not escape until the small stomach was full Two other factors were instrumental in keeping the pouches of the second series of dogs at all times full of gastric juice Owing to the formation of scar tissue about the fistula and subsequent contraction, a functional valve was formed in several cases In all of the dogs of this series, the irritation of the juice on the skin about the fistula was considerable and the animals could nearly always be found lying on the right side Examination in these cases always showed the pouches full of juice and at times under a little pressure In both series of dogs, the gastric juice was tested for acidity and pepsin strength

For the experiments on the rate of healing of acute duodenal ulcers in the absence of gastric juice, dogs were prepared in the following manner The pylorus was excised, the pyloric end of the stomach infolded and closed, and the upper part of the duodenum closed Posterior gastro-enterostomy was then performed In this case it is fair to assume that the upper blind end of the duodenum was free from acid chyme at all times Whatever chyme regurgitated into the duodenum from the gastro-enterostomy opening would be neutralized by the alkaline bile and pancreatic juice, and the duodenal peristalsis incited would carry the neutralized chyme back to the jejunum To obtain data on the rate of healing of duodenal ulcers in the presence of gastric juice, normal dogs were used

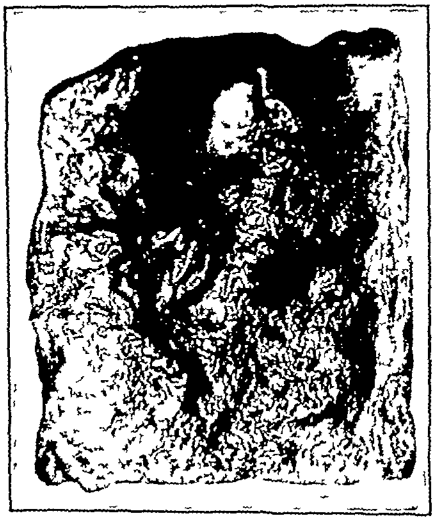

Fig 3 (Dog 38 Table 4) —Ulcer in the duodenum (fifteen days) not exposed to the action of gastric juice

2 *Production of Ulcers* —Local injection of a 5 per cent solution of silver nitrate was chosen as the surest method of producing ulcers The technic employed was similar to that of Friedman and Hamburger[8] For the production of ulcers in the Pawlow

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[4] Boas Deutsch med Wchnschr 1916, **42** 64

[5] Burge, W E and Burge E L The Cause of Gastric Ulcer, THE JOURNAL A M A, April 1, 1916 p 998

[6] Bolton Jour Path and Bacteriol 1915 **20**, 133

[7] Hardt Am Jour Physiol 1916 **40**, 314

[8] Friedman J C and Hamburger, W W Experimental Chronic Gastric Ulcer THE JOURNAL A M A Aug 1 1914 p 380

[9] Rosenow E C *The Etiology of Articular and Muscular Rheumatism* THE JOURNAL A M A April 19 1913 p 1223 The Newer Bacteriology of Various Infections as Determined by Special Methods Sept 12 1914, p 903 Elective Localization of Streptococci Nov 13 1915 p 1687

pouches, 1 5 c c of a 5 per cent solution of silver nitrate was injected through the mucosa into the submucosa of the wall of the small stomach A syringe with a long hypodermic needle was used for the operation, and the fistula was held open with a small rectal speculum The injection of silver nitrate produced a local necrosis of the mucosa, the necrotic material sloughing off in a few days, leaving an acute ulcer

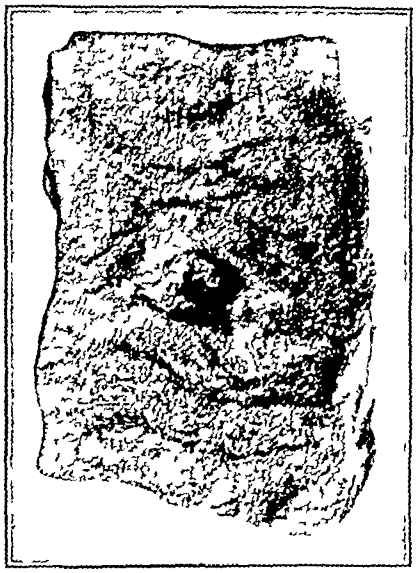

Fig 4 (Dog 40 Table 3) —Ulcer in the duodenum (fifteen days) exposed to the action of gastric juice

In the work on the duodenum, the technic was as follows In the normal animals a laparatomy incision was made through the right rectus, and the duodenum secured, and lifted out through the incision An injection of 1 5 c c of a 5 per cent solution of silver nitrate was made through the serosa and muscularis into the submucosa of the intestine A similar procedure was observed in the other series of animals, after allowing ten days for the healing of the operation for gastro-enterostomy and pylorectomy

TABLE 1—EXPERIMENTS TO DETERMINE THE LENGTH OF TIME REQUIRED FOR THE HEALING OF ULCERS IN THE PAWLOW POUCHES ARRANGED FOR OPTIMUM DRAINAGE OF GASTRIC JUICE OR IN ABSENCE OF GASTRIC JUICE

No of Dog	Number of Experiment	Number Days for Complete Healing of Ulcer	Acidity of Gastric Juice					
			Maximum		Minimum		Average	
			Free	Total	Free	Total	Free	Total
2	1	9	0 000	0 1550	0 000	0 0912	0 000	0 0912
2	2	15	0 000	0 1641	0 000	0 0912	0 000	0 0312
4	1	7	0 1915	0 2827	0 000	0 036	0 000	0 1276
4	2	8	0 1824	0 2730	0 000	0 0819	0 000	0 1094
4	3	10	0 2006	0 2918	0 000	0 036	0 000	0 1185
6	1	8	0 0912	0 1003	0 000	0 056	0 000	0 045
8	1	9	0 1003	0 2371	0 000	0 054	0 0912	0 1094

Average time for healing of ulcers is nine days

In both the work on the stomach and duodenum special effort was made to produce ulcers of the same size in all cases The needle was inserted into the submucosa and the same amount of silver nitrate was always injected The silver nitrate produces an immediate coagulation necrosis of the tissue which is visible as a white or gray area about the point of injection With this as a guide, the same amount of tissue destruction would be produced in every case

RESULTS

The results in brief are as follows

1 The average time required for the healing of the experimental ulcers in the Pawlow pouch, arranged so that there was at all times a quantity of active gastric juice in the pouch (Fig 2), was eight days (Table 2)

2 The average time required for the healing of the ulcers in the pouches, in which there was a maximum drainage for the gastric juice (Fig 1), was nine days (Table 1)

3 The average time required for the healing of the experimental ulcers in the duodenum, both in the presence and in the absence of acid chyme, was twenty days (Tables 3 and 4, and Figs 5 and 6)

TABLE 2—EXPERIMENTS TO DETERMINE THE TIME REQUIRED FOR HEALING OF ULCERS IN PAWLOW POUCHES IN THE PRESENCE OF GASTRIC JUICE

No of Dog	Number of Experiment	Number Days for Complete Healing of Ulcer	Acidity of Gastric Juice					
			Maximum		Minimum		Average	
			Free	Total	Free	Total	Free	Total
1	1	9	0 045	0 2436	0 000	0 0 61	0 045	0 1276
1	2	9	0 045	0 1003	0 000	0 0273	0 1003	0 1185
1	3	5	0 045	0 2644	0 000	0 1003	0 0912	0 1003
3	1	9	0 1094	0 2188	0 000	0 0912	0 1094	0 2644
6	1	8	0 0912	0 2006	0 000	0 1003	0 0000	0 2006
9	1	8	0 1003	0 1915	0 000	0 1094	0 0912	0 1459

Average time for healing of ulcers is eight days

4 Animals, killed and examined at necropsy before the ulcers in the duodenum were completely healed, showed ulcers in practically the same stage of healing in both cases (Figs 3 and 4)

5 Bacteriologic examination of the ulcers in five of the dogs showed a hemolytic streptococcus in pure culture in two cases, mixed staphylococcus and streptococcus in one case, *B coli* in one case, and *B subtilis* in one case The examination was made with the technic of Dr E C Rosenow[9]

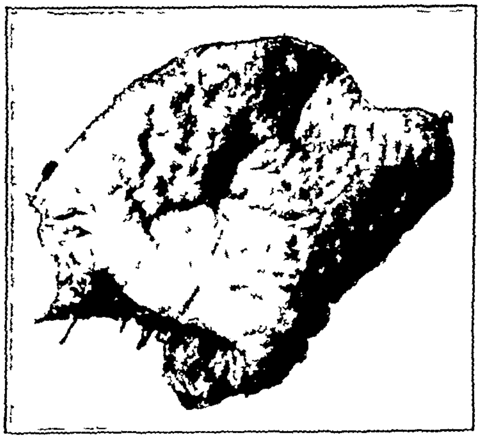

Fig 5 (Dog 16 Table 4) —Ulcer in the duodenum (twenty two days) not exposed to the action of gastric juice

COMMENT

From the experimental evidence obtained, it would seem that the digestive action of the gastric juice is not the important factor in the delayed healing of acute lesions of the stomach and duodenum, and the consequent production of chronic ulcers Acute lesions of the mucosa of the stomach and duodenum do not require any longer time for healing, or display any more tendencies toward chronicity when exposed to gastric juice of normal acidity and pepsin strength, than do similar lesions in the absence of gastric juice

Gastric and duodenal ulcers are, therefore, locally infected areas of the wall of the digestive tract, irrespective of whether the ulcers themselves are produced by primary infection from the blood stream (Rosenow), by local circulatory disturbances, or by mechanical and chemical factors acting on the mucosa

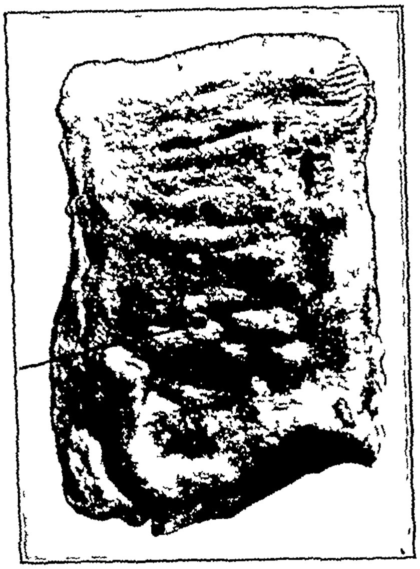

Fig 6 (Dog 32 Table 3)—Ulcer in the duodenum (twenty days) exposed to the action of gastric juice

from the lumen of the intestine It is well known that the tissues surrounding the ulcers are hyperemic It is highly probable that in these hyperemic ulcer areas the nerves (sensory and motor) become hyperexcitable, as is the case in all other areas of infection These hyperexcitable gastric nerves, subjected to stimulation by the normal gastric juice, may thus yield exaggerated responses (motor, inhibitory, and conscious) Carlson suggests that the favorable results from the alkaline and frequent feeding treatments in these cases may be due to the removal of this added stimulation of the hyperexcitable nerves rather than the prevention of any digestive or corrosive action of the pepsin hydrochloric acid on the exposed tissues The degree of reflex disturbance from the acid stimulation of the nerves in the ulcer areas would vary with the individual, depending on the severity and extent of the infection, as well as on the individual stability of the entire nervous organization We should expect it to be much greater in man than in the lower animals

TABLE 3—EXPERIMENTS TO DETERMINE THE TIME REQUIRED FOR THE HEALING OF ULCERS IN THE DOUDENUM IN THE PRESENCE OF GASTRIC JUICE

No of Dog	No Days Since Production of Ulcer	Stage in Healing of Ulcer
37	10	Active ulcer no healing
1	13	Active ulcer 1 5 by 1 cm no healing
40	15	Active ulcer 1 by 1 5 cm no healing
32	20	Ulcer almost healed
33	20	Ulcer completely healed
34	26	Ulcer healed
2	31	Small depressed area in mucosa
22	45	Completely healed

The bacteriologic examination of the ulcers is interesting in that it shows that lesions, produced experimentally by chemical means, may subsequently become infected The bacteria are the same as those isolated from clinical ulcers in man It seems probable that the infection is direct from the alimentary tract, since it is not likely that these bacteria would be found in the circulating blood of otherwise healthy dogs

TABLE 4—EXPERIMENTS TO DETERMINE THE TIME REQUIRED FOR THE HEALING OF ULCERS IN THE DUODENUM IN THE ABSENCE OF GASTRIC JUICE

No of Dog	No Days Since Production of Ulcer	Stage of Healing of Ulcer
36	5	Perforation
35	7	Active ulcer, no healing
27	9	Active ulcer, 0 5 by 1 cm, no healing
11	9	Active ulcer 1 5 cm dia, no healing
25	10	Active ulcer 1 cm dia no healing
38	15	Active ulcer, edges raised indurated
16	22	Ulcer 0 5 cm dia edges indurated
8	24	Ulcer nearly healed one small depressed area
39	27	Ulcer healed
20	32	Ulcer healed
14	30	Ulcer healed

CONCLUSIONS

1 The digestive activity of gastric juice is not the important factor in the delayed healing of acute ulcers of the stomach and duodenum and the consequent formation of chronic ulcers

2 Ulcers produced by local injection of solutions of silver nitrate become subsequently infected with organisms probably from the alimentary tract

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THE IMPORTANCE OF AURAL SYMPTOMS IN THE EARLY DIAGNOSIS OF TUMOR OF THE CEREBELLOPONTILE ANGLE *

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NEWARK, N J

The eighth nerve, comprising the auditory and the vestibular, from a diagnostic surgical standpoint, may be divided into three portions the *peripheral,* comprising the end organs in the labyrinth, the *intradural,* extending from the fundus of the internal auditory meatus to its entrance in the groove between the pons and the medulla, and the *intracerebral* ramifications of its tracts in the brain to its cortical centers in the temporosphenoidal lobe and cerebellum

The sudden and commanding character of the symptoms in inflammation of the cochlea and semicircular canal are due largely to the small, inelastic walls of the containing bony labyrinth, compelling an immediate paralysis of the function of the delicate nerve structures, their bony case not allowing the gradual development of symptoms from slow increasing pressure on the nervous structure, which frequently occurs in nervous tissue elsewhere (The greater resistance of the auditory portion in the labyrinth in serous labyrinthitis with the preservation of hearing after the complete abolition of the vestibular function is, however, somewhat of this nature)

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* Read before the Section on Laryngology Otology and Rhinology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

After the entrance of the eighth nerve into the pons, its proximity to other vital centers generally causes the aural symptoms to be immediately overshadowed The diagnostic symptomatology of lesions involving the intracerebral portion of the auditory nerve is but rarely recognized, although in my experience such lesions are far from uncommon [1]

In the passage of the eighth nerve, through the small space from the fundus of the internal auditory meatus to the medulla, across the posterior border of the middle peduncle of the cerebellum, the nerve, while intradural, is still extracerebral, and, being in a free space, may escape for a long time a paralyzing pressure from a tumor of the cerebellopontile angle

Many cerebellopontile angle tumors, especially dural endothelioma and neurinoma,[2] are of very slow growth, and disturbances of hearing and of the vestibular apparatus of the affected side are frequently the only symptoms of which the patient complains, the aural often preceding other symptoms for months, and sometimes for years [3] On the recognition of the intracranial origin of the aural symptoms may depend the success of surgical intervention, and the reputation of the aurist I know of many instances in which, after weeks and months of unsuccessful inflammations and local treatments, the development of a papilledema has first called attention to the true cause of the deafness (Fig 1)

In studying the aural symptoms of cerebellopontile angle tumors, it should be remembered that they are but a modification of the acute aural manifestations so frequent in fracture of the base of the skull, extending through the petrous portion of the temporal bone The end-result of compression of the eighth nerve, whether from fracture or tumor, is the same, namely, loss of function, deafness and loss of vestibular reactability However, in one, the function of the vestibular apparatus of one side is suddenly upset, but, *in tumor, the slow pressure on the nerve allows of a readjustment of the vestibular apparatus during the process of compression*

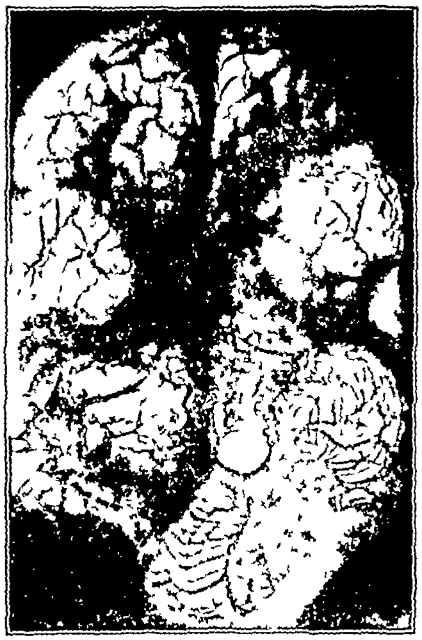

Fig 1—Large endothelioma springing from dura causing great compression of cerebellum Aural symptoms were present for years prior to general symptoms of tumor

In fracture there are suddenly (1) tinnitus and deafness, (2) loss of vestibular reactability, associated with (3) vertigo, (4) spontaneous nystagmus away from the affected side, and (5) spontaneous pointing deviations of both homolateral and contralateral extremities toward the side of the lesion The deafness and loss of vestibular reactability are permanent, but the nystagmus, dizziness, and spontaneous pointing deviations rapidly disappear The transient vestibular manifestations, the dizziness, nystagmus and spontaneous pointing deviations result from a total, sudden loss of function of the vestibular apparatus of the affected side, and the early abolition of these symptoms is due to a readjustment of the vestibular system, as a whole, to meet the changed condition

It is through *the same* readjustment in the vestibular apparatus (*of the opposite as well as the affected side*) which, in the acute cases, so early abolishes the spontaneous nystagmus, pointing deviations and dizziness, that the slowly growing cerebellopontile angle tumors may first manifest themselves

We have at our command for the early diagnosis of intracranial disturbances of the eighth nerve (1) functional examination of the auditory portion, and (2) functional examination of the vestibular portion

So important is a complete and systematic routine functional examination of the eighth nerve, that all patients presenting themselves with disturbance of the hearing or disturbance of the equilibrium should, because of the time consumed and the part played by the personal equation, be delegated for examination to a specially trained attendant

This routine examination by an attendant in my office consists, for the auditory portion, in ascertaining (1) the hearing distance of the (*a*) watch, (*b*) whisper, and (*c*) voice, (2) the lower and upper tone limits and the measuring of their respective durations, (3) the Rinne-positive or negative, (4) reference of the Weber at both vertex and teeth, and (5) the measurement of the duration of the bone conduction

The routine examination of the vestibular apparatus consists of ascertaining (1) the presence or absence of spontaneous nystagmus If from the above I suspect labyrinthitis or intracranial involvement, the attendant further (2) examines the spontaneous pointing of both arms and legs, and (3) explains to the patient the caloric test (*a*) its inconveniences, such as vertigo, possible nausea and vomiting, (*b*) the short duration, during induced nystagmus, of the pointing deviation and falling, and (*c*) its successful application, largely depending on the patient resisting the natural tendency to close the eyes (*d*) The attendant then proceeds to the repeated rehearsing with the patient of the pointing and falling positions

When the patient thoroughly understands what is required of him (4) the cold caloric test is applied in my presence, and during it are noted (*a*) the induced nystagmus, (*b*) the rapidity of its induction, (*c*) whether it is associated with vertigo or a sensation of dizziness, (*d*) the pointing deviation for both arms and legs during the induced nystagmus, and (*e*) the falling tendency

If the patient has been thoroughly drilled by the attendant prior to the application of the caloric (cold) test, it is remarkable what a small amount of time is consumed in making the test, and how much can be ascertained in the few seconds of an induced nystagmus

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[1] Starr Jour Nerv and Ment Dis, 1910, **37** 401 Guthrie Jour Laryngol Rhinol and Otol 1915, **30**, 177 Weinland Arch Psychiat, **26**, 375 Campbell Histological Studies in Cerebral Localization London 1905 Mills Jour Nerv and Ment Dis February, 1912

[2] Healy Jour Nerv and Ment Dis 1909 **26**, 229 Henneberg and Koch Arch Psychiat **36** No 1

[3] Wimmer Six Cases of Acoustic Nerve Tumors with Operation, Hospitalstidende, September, 1914, p 1169 Schmiegelow Ztschr f Ohrenh, July 1915

In cerebellopontile angle tumors growing from the dura, endothelioma, or attached to the acoustic nerve, neurinoma or fibroma molluscum, one of the first symptoms complained of is a slight deafness with a distressing tinnitus Routine examination with the tuning forks may make an early diagnosis of an intracranial origin by (1) a reduction of the duration of the bone conduction of the affected side, (2) the referring of Weber to the unaffected side, (3) a positive Rinne on the affected side, and (4) frequently greater alteration of the tuning fork reactions than is accounted for by the amount of the loss of hearing[4]

All these are too well known to be discussed In the vestibular apparatus, however, many problems are still in the realm of speculation

Spontaneous nystagmus is generally associated with tumor of the cerebellopontile angle when the tumor causes compression of the cerebellar cortex, but its slow growth frequently allows of considerable displacement of the cerebellum without nystagmus, in fact, the slowly progressive deafness has, as a rule, long passed into total deafness before the development of nystagmus, by which time a papilledema from increased intracranial pressure may have also appeared Spontaneous nystagmus is apt to be a late manifestation of tumor originating in the cerebellopontile angle, in contradistinction to tumors growing into it from the cerebellum[5] Spontaneous nystagmus is also present in a certain proportion of tumors situated in the cerebrum,[6] in which case, however, there will be no disturbance of the auditory apparatus, the hearing and the tuning fork reactions being normal

Again, in intracerebellar growths, glioma, not involving the cerebellar cortex, spontaneous nystagmus may be entirely absent, although the growth may have attained considerable size, but in these also the tuning fork reactions are apt to be normal, deafness not usually being present

Spontaneous Pointing Deviations — Spontaneous deviations are, in my experience, very rare during all stages of cerebellopontile angle tumors or intracerebellar lesions of slow development, in contrast to their presence in the early stages of acute lesions, fractures and abscesses Especially in those cases not associated with a spontaneous nystagmus are spontaneous deviations uncommon In cases associated with nystagmus, slight deviations from the normal are frequently present, but the deviations are very irregular and variable in their appearance, my experience confirming Grey's[7] observations

Pointing Deviations During Induced Nystagm from Cold Caloric —In cerebellar abscess during a induced nystagmus, there is frequently an absence i the normal pointing deviation of the homolateral si but in cerebellar growths, deviations are variable believe that in small tumors (especially those confine to the auditory nerve, as in a case observed by me o fibroma molluscum, causing complete deafness, and three years later involving the opposite ear) no alteration from the normal pointing deviations will be present In the larger growths of the angle and those originating in the cerebellum and growing into the angle, the interference with the normal pointing deviations will depend on the tumor being extensive enough to interfere permanently with the functioning of the cerebellar cortex or tracts of the different parts

In increased intracranial pressure from disturbances of the cerebrospinal fluid system, variations in the degree of increase may cause variable pointing deviations, the latter being at one time absent and at another time present (Fig 2)

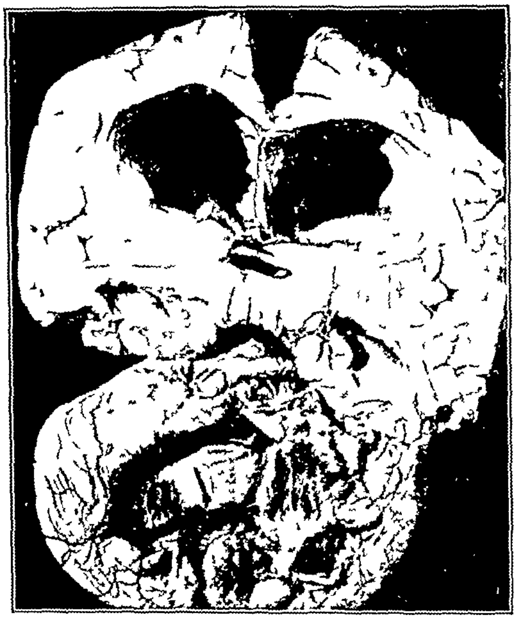

Fig 2 —Small tumor with large secondary cyst of cerebellum causing great hydrocephalus During life, spontaneous nystagmus was absent Vestibular reactability was at times present and again absent

Vestibular Reactability of the Unaffected Side —The diagnostic assistance obtained from the cold caloric of the ear on the opposite side to the lesion has been of the greatest value in the cerebellopontile angle tumor In cases of partial deafness of one ear, cold caloric applied to the unaffected ear uniformly gave a *greatly diminished reactability*[8]

After the deafness has become complete and symptoms of increased intracranial pressure, such as a papilledema, present themselves in my experience, it is frequently impossible to induce nystagmus by the syringing of cold water into the ear of the unaffected side, and if a slight nystagmus is induced, it is unaccompanied by vertigo or vomiting, at most a slight sensation of momentary giddiness being complained of Also in the early cases in which hearing of the affected side is still present, while syringing of cold water in either ear induces a slight nystagmus, this nystagmus is not associated with vomiting or vertigo, but generally with a "floating" or swimming sensation of very transient duration

The value of the diminution of the vestibular reactability of the unaffected side, as a sign of increased intracranial pressure, was originally stated[9] in a communication to the American Otological Society in June, 1912 Confirmation of this observation has frequently occurred since that date

Examination with regard to the reactability of the vestibular apparatus in patients suffering from marked internal hydrocephalus, the result of intracerebellar mors, may give very conflicting findings at different xaminations

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[4] Holinger Tr Ninth Otol Cong p 494

[5] Weisenburg T H and Work Philip The Diagnosis of Tumors in the Posterior Cranial Fossa The Journal A M A Oct 16 1915 p 1345

[6] Grey E G Studies on the Localization of Cerebellar Tumors The Journal A M A Oct 16 1915 p 1341

[7] Grey E G Am Jour Med Sc 1916 151, 693

[8] All caloric tests were made with patients seated in an upright position

[9] Eagleton W P Decompression for the Relief of Disturbances of the Auditory Apparatus of Intracranial Origin Report of Three Cases with a Previously Undescribed Aural Condition Laryngoscope 1912

Figure 2 shows a large intracerebellar glial cyst, ith marked secondary hydrocephalus The child as repeatedly examined during a year and a half rior to death Spontaneous nystagmus was never resent, and the spontaneous pointing deviations observed were too slight and transient to be definite e was repeatedly subjected to the cold caloric During a violent headache, doubtless due to a disturbance the constantly present internal hydrocephalus, it s impossible to induce nystagmus or pointing deviations, a day later, however, cold water in either ear ily induced nystagmus, associated with normal inting deviations and falling tendencies, but the nysgmus was never associated with a subjective sense of rtigo, or with vomiting

It would seem, then, that alterations in increased intracranial pressure influences the possibility of the production of an induced nystagmus and of associated pointing deviations, abolishes the vomiting so often associated with the cold caloric, and lessens to a marked degree the subjective discomfort of dizziness

The absence, following cold caloric of vertigo (the only complaint frequently being a transient giddiness) and vomiting, with a reduction of the vestibular reactability of the unaffected side, may probably be regarded as symptoms of an increased intracranial pressure

It would appear, therefore, that the aural manifestations of cerebellopontile angle tumor are (1) progressive deafness, beginning with a disturbance of the proper relationship between the degree of hearing and the tuning fork reaction, especially the duration of the bone conduction to the degree of deafness, and ending in (2) total deafness, associated with (3) loss of vestibular reactability of the affected side, and during the time that the vestibular apparatus is still functionating (4) a gradual readjustment of the vestibular apparatus of the contralateral as well as the homolateral side is going on, which is manifested by (*a*) a reduction or even a temporary abolition of its reactability to the cold caloric (at least when applied in the upright position), (*b*) an absence of the vertigo and vomiting which normally accompany the induced nystagmus from the cold caloric, and (*c*) absence of spontaneous pointing deviations As the cerebellar cortex becomes affected, however, may be added (5) spontaneous nystagmus, (6) spontaneous pointing deviations, and (7) absence during an induced nystagmus of the normal pointing deviations of the homolateral side

15 Lombardy Street

Women in Industry—In December, the Committee on Labor of the House of Representatives favorably reported a bill creating a woman's division in the Department of Labor to investigate and report on all matters pertaining to the welfare of wage-earning women, and especially to investigate the competitive influence of women in the several industries, the adjustment of modern industrial mechanism and management to the nervous organization of women, and the influence of industrial employments on the subsequent home life of wage-earning women The chief of this division is to be a woman appointed by the secretary of labor The division will cooperate with the Bureau of Labor Statistics and with the Children's Bureau, in the same department The bill has the approval of the secretary of labor

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CLINICAL TYPES OF LABYRINTHITIS

WITH COMMENTS ON TREATMENT *

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Preliminary to a discussion of the clinical types of labyrinthine disease, may I remind you that the hardness of the labyrinthine capsule and its anatomic structure seem to be so arranged by nature that they form an unusually strong barrier against invasion by a purulent process?

It is estimated by Bezold that the labyrinth becomes involved only once in 500 cases of purulent otitis media Friedich and Hinsberg, on the other hand, estimate its occurrence once in 100 cases The latter seems to me more nearly correct The most vulnerable points in the labyrinthine wall are the horizontal semicircular canal, the fenestra ovalis, the fenestra rotunda, the promontory and, from the cranial side, the internal auditory meatus The labyrinth may be invaded by a purulent process from three sources (*a*) from the middle ear, (*b*) from the blood currents, (*c*) from the meninges Our cases come chiefly from the first-mentioned type, wherein the middle ear spaces become the seat of a purulent lesion, which in turn advances into the bony structure, and during its progress attacks the labyrinthine wall and finally invades the delicate structures within the labyrinthine capsule This gives rise to our so-called purulent labyrinthitis

The following description of the various types of labyrinthine inflammation is based largely on clinical data Thus, we broadly divide internal ear inflammation into circumscribed labyrinthitis and diffuse labyrinthitis Before entering into a discussion of the subdivisions it may be well to eliminate those cases of *chronic suppurative otitis media* which have vertiginous attacks, but without disturbance in the functions of the labyrinth These patients complain of attacks of vertigo, but they have hearing, a normal rotation test, a normal caloric test and no evidence of fistula As a basis of these attacks of vertigo it is believed that middle ear disease has attacked the bony labyrinthine capsule without eroding the same This type of labyrinthine disturbance is known as paralabyrinthitis Probably there should be added to this type of paralabyrinthitis those cases in which the patient suffers for a few days from labyrinthine irritability as a result of irritation caused by injury to the stapes in performing a paracentesis Such a case was recently reported by Guntzer The family physician did a paracentesis on a patient who evidently had no infective process but was suffering from an attack of acute catarrhal otitis media

There was history of pain in the right ear for two days, no discharge, since the previous evening has been unable to walk, was dizzy and vomited Examination of the right ear showed the membrana tympani slightly reddened no bulging and a pinhead perforation about the center of the superior posterior quadrant, with a droplet of serous red discharge exuding The patient had a spontaneous horizontal nystagmus to the left and rotary on looking up, on attempting to rise fell toward the right Hearing was not impaired, no mastoid tenderness, no fever pulse 88 Diagnosis of labyrinthine irritation was made, but no assignable cause could be elicited This condition lasted ten days before the patient was able to leave the bed At a subsequent office visit the patient confided that his family physician was called the evening before Dr Guntzer's visit to the patient The patient was told he had an abscess in his ear and the doctor used an instrument to open it, when the patient at once became dizzy, nauseated, vomited and was unable to walk The labyrinthine irritation was most likely due to disturbance of the foot plate of the stapes Fortunately the middle ear and labyrinth were not infected, there was no discharge and the patient escaped the dire consequences that may have followed such an infection

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* Read before the Section on Laryngology Otology and Rhinology at the Sixty Seventh Annual Session of the American Medical Association, Detroit June, 1916

The writer has had similar experiences in patients whose ear drums have been opened by inexperienced operators, but more often these accidents result in at least an attack of serous labyrinthitis with partial or total loss of hearing, and occasionally the traumatisms are followed by acute purulent labyrinthitis with fatal results The attacks of vertigo, in such cases, are probably due to circulatory changes within the labyrinth or to transient labyrinthine irritation Their cause, however, is not definitely known

In a certain proportion of cases of paralabyrinthitis, as the disease progresses, one of two things occur either there is a sudden rupture of the infective material into the labyrinth, causing diffuse labyrinthitis, or gradual erosion of the labyrinthine capsule occurs at some place, with the walling off of the infective process, resulting in a circumscribed labyrinthitis When the latter occurs there are attacks of vertigo with nausea or vomiting, which become more severe until the patient finally seeks relief Several of these patients have come to my clinics having practically made their own diagnosis Thus they have stated that having had chronic discharging ears they recently found, on introducing the index finger into the external auditory canal, that they were seized with vertigo, nausea and vomiting In some instances we have been able to repeat this experiment and by firm pressure on the tragus, closing the external auditory canal, we have been able to elicit a positive fistula test This circumscribed labyrinthitis occurs almost invariably with chronic suppuration of the ear, either tuberculous or cholesteatomatous In such cases the disease has not invaded the endolabyrinthine spaces Thus, in such instances, although the bony capsule of the labyrinth has been eroded, the disease has not really entered the membranous labyrinth and the end-organs within the labyrinth still perform their functions or at least are capable of irritation

Such patients may have a fairly acute hearing, the rotation test and the caloric test are normal and the fistula test is positive There may or may not be spontaneous nystagmus to both sides The writer has records of five (formerly published) cases of this type and has seen many others These cases of circumscribed labyrinthitis should be differentiated from the larger class of cases of necrosis of a part or the whole of the bony capsule, with destruction of the end-organs, many of which are discovered only at the time of performing the radical mastoid operation The latter class will be referred to later in this paper

Diffuse labyrinthitis may be secondary to either an acute or chronic suppuration of the middle ear It may be metastatic or may result from an extension of meningitis through the pathways that connect the labyrinth with the subdural lymph spaces The metastatic cases usually complicate mumps Such a case was reported by the writer in the *New York Medical Journal* of Aug 2, 1913, in a boy of 18 who was suffering from mumps of great severity, during which time he had extreme vertigo and tinnitus in the right ear followed in three days by total deafness He was unconscious for four days The vertigo continued for over two weeks, when it gradually subsided After three months there was a partial return of the function of the static labyrinth, but he is still totally deaf Endocranial complications, with the exception rarely of serous meningitis, never occur in these cases

Diffuse labyrinthitis must be considered under two heads first, those cases that present symptoms, so-called manifest or acute, and second, cases without symptoms, so-called latent or chronic cases Cases of diffuse manifest labyrinthitis may occur with either acute or chronic middle ear suppuration The onset is sudden, there is rapidly developing deafness, nausea, vomiting, vertigo and nystagmus The vomiting differs from that of intracranial disease in that it is invariably associated with nausea There is no projectile vomiting The nausea bears no relationship to food The nausea and the vomiting follow movements of the head The nystagmus is of a mixed, horizontal and rotary type and is directed to the sound side With the nystagmus there are also the subjective sense of being turned and the apparent turning or spinning of objects in the environment The objective vertigo consists of reaction movements of the trunk and extremities in the direction of the slow component of the nystagmus, that is, toward the diseased ear Such patients, in attempting to walk, fall toward the diseased side or stagger toward the diseased side and must be supported There are no general symptoms, that is, there is neither rise of temperature nor acceleration of the pulse rate unless intracranial symptoms intervene We have seen all types of labyrinthitis and are convinced that even grave intralabyrinthine suppuration may occur without fever This history will illustrate

The patient had had suppuration in the right ear for five months, with no complicating symptoms up to three days before coming under observation Two days previously he had been seized with an attack of vomiting and dizziness, the latter of which had remained continuously He had no rise of temperature and did not complain of pain in the mastoid, nor was there any tenderness on pressure He was totally deaf in the right ear He had spontaneous rotary nystagmus to the left When walking he was inclined to fall toward the right He was immediately admitted to the hospital, and the radical mastoid operation was performed The mastoid antrum and cells contained a small amount of pus, and there was much granulation tissue in the tympanic cavity There was no fistula of the labyrinthine capsule, but the region of the round and oval windows was granular and soft to the probe The patient made a good recovery from the ether and passed a good night, was rational and answered questions early the following morning Later in the morning he began to show signs of meningeal irritation, with a moderate rise of temperature At noon of the same day there was a sudden rise of temperature to 105 F, he became unconscious, and died at 2 30 p m, apparently of respiratory failure

It must not be forgotten, in this connection, that diffuse labyrinthitis is a complication which often occurs during an acute exacerbation of chronic suppuration of the middle ear and mastoid, and fever, when it accompanies such a labyrinthitis, is, in all probability, due to the recrudescence of the mastoid disease

The attempt by the Vienna school to differentiate between serous labyrinthitis, so called, and suppurative labyrinthitis, so called, leaves much to be desired This differentiation rests on the retention or destruction of the labyrinthine functions However, several cases which were clearly serous, in that they occurred during the first twenty-four or forty-eight hours following the beginning of the acute middle ear abscess, have had total destruction of functions during the height of the symptoms A recent case occurring on my service at the Manhattan Eye, Ear and Throat Hospital, treated by Dr Friesner, is of this type

L H, a man, aged 42 years, was admitted Feb 25, 1916, complaining of acute suppurative otitis media on the right side He refused myringotomy Forty-eight hours after the spontaneous rupture of the drum he had an acute diffuse labyrinthitis with vertigo, nausea, vomiting, etc Twelve hours after the beginning of the labyrinthitis he was totally deaf, had a spontaneous nystagmus to both sides, more marked to the diseased side, with no falling nor vomiting Eleven days after the beginning of the acute otitis a simple mastoid operation was done The mastoid healed and the middle ear became dry He complains of tinnitus in the affected ear and is totally deaf The caloric reaction is negative Rotation to right, nystagmus 18 degrees, rotation to left, 20 degrees A diagnosis of serous labyrinthitis was made, based on the fact that the labyrinthine invasion occurred during the first few days of an acute otitis media and the symptoms were not severe Hence, despite the necessity to operate on the mastoid the labyrinth was untouched

While this differentiation is unfortunate in the selection of the terms "serous" and "suppurative," it contains this truth, namely, so long as any irritability remains in the labyrinth, extension from the labyrinth to the intracranial structures does not occur It would perhaps have been better, then, to call those cases in which the function of the labyrinth is destroyed "grave labyrinthitis," and those in which, despite the presence of labyrinthine symptoms, the function, or rather irritability, of the labyrinth was retained "mild labyrinthitis"

The diffuse manifest labyrinthitis which complicates acute middle ear suppuration may be divided into two classes, first, those which occur within the first three or four days of the disease, and second, those which occur six, eight or ten weeks after the beginning of the middle ear suppuration, in the presence of an acute mastoiditis In the first class the labyrinthitis is almost invariably mild or so-called serous It rarely leads to any intracranial complication and frequently, after the middle ear suppuration has run its course, the function of the labyrinth, at least of the static labyrinth, is restored On the contrary, the cases of labyrinthitis which complicate latent mastoiditis, and occur eight or ten weeks after the beginning of the acute suppurative otitis media, are almost invariably grave, or so-called suppurative, and frequently lead to intracranial complications, that is, meningitis As a rule, the latter cases are due to infection by one or other forms of capsulated coccus

As has been stated above, the labyrinthine inflammations which complicate the chronic suppurating middle ear may be either manifest or latent As in the cases which occur with the acute otitides, the manifest labyrinthitis may be either grave, that is, suppurative, or mild, that is, serous The suppurative labyrinthitis which is progressing to the endocranial structures, that is, arousing a meningitis, is usually accompanied by fever and headache The writer has several records of cases of this type The so-called labyrinthine symptoms are very violent and do not become progressively less severe On the contrary, those labyrinthine inflammations which are mild and have no tendency to involve the meninges have associated with them, as a rule, neither headache nor rise in temperature Furthermore, in the uncomplicated cases the labyrinthine symptoms become day by day appreciably less severe The most important signs of an extension of the labyrinthine suppuration to the meninges are headache and fever In these cases, of course, there will be total destruction of labyrinthine irritability The cerebrospinal fluid may also give us information regarding the extension of the disease to the meninges, even in the early stages

There are cases of diffuse manifest labyrinthitis of the mild type which occur after the radical mastoid operation This condition may come on any time during the healing of the radical mastoid cavity It differs from the diffuse labyrinthitis which results from the disturbance of the stapes during the radical operation, in that in the former the symptoms do not occur for the first twelve hours after the operation, whereas, in the latter the symptoms supervene at once on the patients coming out of the anesthesia By far the largest class of cases that we have met are those in which the labyrinth has been totally destroyed and in which there is no history of recent attacks of vertigo, vomiting, etc These cases are discovered solely by making the functional test of the labyrinth, a test which we invariably make before performing a radical mastoid operation Occasionally, no history of previous attacks of vertigo can be elicited In others there is an indefinite history of vertigo and vomiting which has been referred to other organs, bilious attacks, for instance The relationship between the vomiting and vertigo and the ear is not understood by them There may be a spontaneous nystagmus directed to both sides which can be observed only when the eyes are turned to the extreme angle

If the labyrinth destruction has existed for six months or more, it has been common in our experience to find a compensation test of rotation described by Ruttin The caloric test is negative, as is the fistula test, and there is total deafness When the labyrinth becomes filled with pus and granulations, there is an extension of the granulation tissue into the internal auditory canal and an occlusion of the labyrinthine artery occurs This artery is a terminal artery and its destruction entails an extensive death of the bony labyrinthine capsule, with the formation of a sequestrum In this type of cases we have frequently found a facial paralysis associated with the dead labyrinth The facial paralysis is not invariably due to neuritis We have seen cases in which a paralysis cleared up rapidly following the operation Here, in all probability, the paralysis was due to pressure either of the granulation tissue or of a sequestrum on the nerve This type of labyrinthitis is as dangerous as it is insidious, and often leads not only to meningitis, but also to cerebellar abscess and sinus thrombosis Dr John B Rae in a paper read before the Medical Society of the State of New York, May, 1916, suggested the following classification of purulent labyrinthitis acute diffuse labyrinthitis, chronic diffuse labyrinthitis, paralabyrinthitis with fistula, and paralabyrinthitis without demonstrative fistula

The treatment of labyrinthitis varies considerably and the indications for operative interference are by no means uniformly recognized There exists, furthermore, great difference of opinion as to when one should interfere in labyrinthine disease and as to the extent of that interference The indications for operation depend on the type of labyrinthine involvement In patients, for instance, with chronic suppurative otitis media, who have vertigo, but in whom there are no other signs of labyrinthine involvement, either of the auditory labyrinth or static labyrinth, the radical mastoid operation should be done, without disturbing the labyrinth This is followed, as a rule, by a cessation of the vertiginous attacks In the type known as circumscribed labyrinthitis, where there are labyrinthine symptoms with a normal rotation test, a positive caloric test and a positive fistula test, the radical mastoid operation, only, should be done Relief of the symptoms, as a rule, follows this procedure

The indication for operation in cases of diffuse labyrinthitis may be considered under two heads first, those cases of acute diffuse labyrinthitis which complicate the acute otitides, and second, those cases of diffuse labyrinthitis which occur with the chronic middle ear suppuration There are cases of labyrinthine invasion which supervene within a day or two after the beginning of an acute otitis media In such instances it is rarely necessary to do more than a free myringotomy These cases are, as a rule, mild and not prone to cause intracranial complications Even where the middle ear infection is complicated by an acute mastoiditis which requires interference, the labyrinth should not be touched And this is true even though the hearing be lost and the caloric test be negative In many of these cases the function of the labyrinth, at least of the static labyrinth, is restored There is but one exception to this rule, and that is cases in which the labyrinth has been injured by the myringotomy knife

With regard to those cases, however, in which a diffuse labyrinthitis supervenes on an acute middle ear suppuration, and latent mastoiditis of six, eight or ten weeks' duration, the story is a different one Here, the labyrinth operation is fully justifiable in connection with the mastoid operation Failure to open and drain the labyrinth may result in a meningitis, which otherwise might be avoided In the event of a diffuse labyrinthitis complicating either an acute or chronic suppurating ear, in which there is headache, fever, or any symptoms from which one might suspect an intracranial extension of the labyrinthine suppuration, the labyrinth, of course, should be opened and drained It is not to be expected that recovery will take place in the large proportion of cases, but the fact that the meningeal infection may occasionally be localized offers sufficient encouragement to warrant this attempt to save life In these desperate cases no half-way measures are permissible and the Neumann operation, in which the bone is entirely removed, including the border of the internal auditory canal, together with drainage of the cerebellar spaces, is the ideal procedure

Perhaps the greatest difference of opinion exists regarding those cases of diffuse labyrinthitis which complicate chronic suppurating middle ears This is particularly true of the manifest variety, that is, cases in which there are labyrinthine symptoms and in which the functional test shows complete deafness and loss of irritability of the static labyrinth According to the Vienna school here are the indications for labyrinthectomy If the labyrinth has been invaded by the suppurative process and has been destroyed, the functional tests will, of course, show total absence of hearing and total loss of static irritability Many of these cases are discovered accidentally in making the functional test before doing the radical mastoid operation It is this class of cases which undoubtedly, in time gone by, led to a meningitis of unknown origin after the radical mastoid operation A trauma, incident to the radical mastoid operation, frequently causes the lighting up of the labyrinthine suppuration which has previously been walled off from the meninges Therefore, in these cases it is wiser, in addition to the radical mastoid operation, to open and drain the labyrinth In many instances this type of case is associated with facial paralysis and part of the labyrinthine wall has been sequestered Wherever there are signs of an intracranial complication, combined with a destroyed labyrinth, the posterior fossa should be uncovered, irrespective of the type of labyrinth operation performed

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DIFFERENTIAL DIAGNOSIS BETWEEN PURULENT LABYRINTHITIS AND CEREBELLAR LESIONS *

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I should like to state at the outset that I have not attempted a complete resume of the differential diagnosis between labyrinthine and cerebellar lesions That has been done very often and very well I have rather sketched the differentiation from the point of view of cerebellar symptomatology, paying particular attention to one or two phases of the question

Even though the occurrence of disturbance of balance, vomiting and nystagmus are strongly suggestive of the most common cause of such symptoms, namely, labyrinthitis, it must not be forgotten that other conditions, too, may arouse almost identical phenomena Among the conditions which may cause symptoms similar to those of labyrinthine disease the most important are lesions in the cerebellum and it is necessary, therefore, that the latter be differentiated from labyrinthine disturbances

It is, perhaps, best to discuss this differentiation from the point of view of cerebellar symptomatology under several heads first, general symptoms of cerebellar lesions, which may be due either to increased intracranial pressure or, in the case of abscess, to the inflammatory process in the cerebellum and, second, focal symptoms of cerebellar lesions, which may be either symptoms of disturbance in movement or symptoms of disturbance in the vestibular apparatus

In uncomplicated labyrinthitis there is very rarely headache In cerebellar lesions there is almost invariably headache With abscess of the cerebellum the headache may not be constant or it may be dull and boring, with unbearably severe exacerbations, but it is present in at least 90 per cent of cases With cerebellar lesions there may be disturbance of the sensorium, disturbance of respiration, bradycardia, optic nerve changes, paralysis of the cranial nerves, none of which, with the exception of disturbances in the eighth nerve, and occasionally the seventh, ever occur with labyrinthitis There is vomiting with cerebellar lesions, as well as with labyrinthine, but in the latter the vomiting is never of the projectile type, that is, it is always associated with nausea Furthermore, the vomiting with labyrinthitis becomes daily less, so that after a few days it ceases On the other hand, the vomiting with cerebellar abscess is frequently projectile in type and is particularly persistent, much more so, as a rule, than with abscess in the temporosphenoidal lobe

With cerebellar abscess and with labyrinthitis the temperature may be normal, with abscess it may be subnormal or there may be fever, but uncomplicated

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purulent labyrinthitis of itself never causes a considerable rise in temperature With abscess there is frequently marked emaciation and there may be pathologic changes in the cerebrospinal fluid In uncomplicated labyrinthitis these, of course, do not occur

The focal symptoms of cerebellar lesions which help to differentiate them from labyrinthitis may be divided into symptoms of disturbances of movement, and symptoms of disturbances of the vestibular apparatus With cerebellar lesions there may be *hypermetria,* asynergy, adiadokokinesis, tremor, disturbances in speech, atony or hypotony, catalepsy, hemiparesis and fixed attitude of the head None of these occur with labyrinthitis

Cerebellar lesions, however, may have in common with disturbances in the vestibular apparatus abnormalities in the voluntary movements of the trunk and of the extremities When these disturbances in movements result from disease in the labyrinth or in the vestibular nerve, they are dependent for their direction on two elements, first, impulses from the static labyrinth, and secondly, impulses from the muscles and joints of the neck Changes in these peripheral impulses cause alterations in the direction of the deviating movements Thus, if, as a result of labyrinthine disturbance, a person has a spontaneous nystagmus directed to the right, when he attempts to stand erect he will fall to his left, if he faces forward The tendency to fall, then, will be in the direction of the slow component of his spontaneous nystagmus If, however, the afferent impulses to the cerebellum from the muscles and joints of his neck are changed by turning his face to one or the other shoulder, there will occur a change in the direction toward which he tends to fall If this objective imbalance is due solely to a pathologic disturbance of the vestibular impulses, the tendency to fall will always be in the direction, in space, of the slow component of the resulting nystagmus This relationship between the spontaneous nystagmus and the deviations is constant and characteristic of labyrinthine lesions and applies to the extremities as well as to the trunk In the presence of a nystagmus of vestibular origin to the right, the arms held stretched out in front of the body will deviate to the left and the direction of this deviation will change with alterations in the position of the head

On the contrary, the objective disturbances of balance due to cerebellar lesions, that is, the falling and the deviations of the extremities, bear no definite relationship to the spontaneous nystagmus if this be present It is believed, although by no means proved, that the vermis of the cerebellum has to do with what Edinger called the statotonus, that is, the development of such tonic influences to the voluntary muscles as cause the body to be held erect in space In disease of the vermis there is a disturbance of body balance and a tendency to fall, usually toward the side of the lesion The direction of this tendency to fall is central in its origin and is not influenced by changes in the peripheral impulses Thus a person who has a positive Romberg, falling to the right, as the result of a cerebellar tumor, will fall to the right irrespective of any changes in the position of his head Furthermore, a spontaneous nystagmus often accompanies cerebellar lesions, and if this is present, the direction of the falling will not of necessity be to the side of the slow component What has been said regarding the tendency to fall applies equally to the deviations of the extremities

So that, with regard to their influence on voluntary movements, the chief differential point between cerebellar lesions and vestibular lesions lies in the fact that in the former the falling and the deviations of the extremities are central in origin and their direction is not influenced by changes in the peripheral or afferent cerebellar impulses, whereas in the latter, changes in these peripheral impulses, aroused by changes in the position of the head, cause alterations in the direction of both the falling and the deviations

With cerebellar lesions, in addition to spontaneous falling and deviations of the extremities, there may be a loss of the reaction movements which occur normally in response to artificially aroused vestibular impulses

The response to functional tests in the presence of labyrinthine suppuration, that is, the loss of hearing, the loss of reaction to the caloric, rotation and fistula tests with the spontaneous nystagmus, etc, are so familiar that they require merely mention here I dare say that all those who have performed the functional tests of the static labyrinth in the presence of cerebellar tumors or abscesses have seen the so-called enduring nystagmus With cerebellar lesions a caloric nystagmus directed to the side of the lesion frequently lasts much longer than the normal two and one half or three minutes This phenomenon is believed to be due to the loss of the inhibitory influence of the cerebellum on the vestibular centers In two cases in which large hernias of the cerebellum occurred after decompression operations in the posterior fossa I attempted by firm pressure on the hernia, after the manner described by Barany, to influence the duration of the caloric nystagmus directed to the affected side In one of these I was successful, but in the other I failed, the nystagmus lasting the normal two or two and one half minutes

I have purposely left for the end of this paper the consideration of the spontaneous nystagmus which sometimes accompanies cerebellar disease As the result of our experience in the intervening time Dr Braun and I, in our book on cerebellar abscess recently published, have reiterated a statement made about two years ago in a paper read before the neurologic section of the New York Academy of Medicine, namely, that the nystagmus of central origin often cannot be differentiated clinically from that due to labyrinthine disease We have been unable to recognize any essential difference between the nystagmus of central origin and that due to disease of the labyrinth or vestibular nerve That there are minor differences is evident Grey, in his report of cerebellar cases from the Peter Bent Brigham Hospital, although agreeing in the main with the statement above, calls attention to the fact that in their experience the nystagmic movements are coarser with subtentorial lesions It is true they are often more like the caloric nystagmus which one sees in the blind With acute diffuse labyrinthitis the nystagmus is almost invariably directed to the opposite side With cerebellar lesions the direction of the nystagmus may vary at different times Neumann has shown that this occurs with cerebellar abscess With tumors the direction of the nystagmus may vary sometimes with changes in the position of the head Furthermore, with tumors it is more common to observe a nystagmus in the anteroposterior vertical plane I have never seen this with vestibular lesions But in the fact that it is a rhythmic movement of both eyes and in the planes in which these movements occur with the exception cited above, the nystagmus of central origin is essentially identical with that of peripheral origin.

There is, however, a considerable difference in the behavior of the two. The nystagmus with diffuse labyrinthine disease grows appreciably less in intensity from day to day, while that of central origin remains the same or may even increase in intensity.

Finally the attempt to consider the nystagmus of central origin as an oscillation, an asynergia to be differentiated from that of peripheral origin by the fact that in the latter the eye movements decrease on fixation of the vision, is not borne out by our experience. We have but recently seen a circumscribed labyrinthitis, a diffuse labyrinthitis and a fracture through the labyrinth, in all of which the spontaneous nystagmus was definitely increased on fixing the vision on the index finger held close to the patient's nose, and while this is, in all probability, not the rule, it is, at all events, too frequent an occurrence to be useful as a means of differentiation.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. EAGLETON, PHILLIPS AND FRIESNER

Dr. Horace Newhart, Minneapolis: I wish to emphasize the importance in all suppurative cases of making regular systematic examinations of the labyrinthine and cerebellar functions. By doing so we could undoubtedly reduce materially the mortality which exists with all endocranial complications of otitic origin. Take the statistics for cerebellar abscess. Unoperated, the mortality is practically 100 per cent., while the records of those best fitted to operate in such cases show a mortality of 40 per cent. Patients with cerebellar abscess too often come under observation in the latter stage of the manifest period, when interference cannot be expected to yield better results than those stated. But there is another group of cases, including the many chronic cases of temporal bone involvement, and the acute suppurative cases, if we were to apply to these our regular routine tests of the labyrinthine and cerebellar functions, we should gain some light as to what is going on within the cranial cavity, and by early operation might safely intervene before the appearance of a diffuse meningitis, with very appreciable reduction in mortality. Of great assistance in making a diagnosis of endocranial complications are the results of ophthalmoscopic and ocular examinations. Alexander, Neumann and O. Ruttin stated that in at least 50 per cent. of cases of cerebellar involvement originating in the labyrinth there are changes in the fundus. These changes are not always marked; only in the later stages, with decided increased endocranial pressure, is there a true choked disk. But the distinct alteration of the retinal vessels, usually unilateral and corresponding to the side involved, are sufficiently constant to be of diagnostic value. Disturbances arising from increased pressure affecting the cranial nerves come relatively late, but it is not unusual to find a diplopia with cerebellar abscess. In three cases coming under observation during the past six months, all terminating fatally, from several days to two weeks before a diagnosis of a terminal meningitis was made, the patient had complained of distinct throat symptoms with painful deglutition, and this without any discoverable lesion of the throat. This suggests somewhat the possibility of very early bulbar irritation associated with these cases of endocranial complication in the posterior fossa.

Dr. Isaac H. Jones, Philadelphia: A woman was referred to me with a diagnosis of tumor of the right cerebellar hemisphere. It was evident that either the ear tests were incorrect or there was nothing the matter intracranially. The right ear responded poorly; douching the left with both hot and cold water showed normal nystagmus and normal past-pointing in both directions, suggesting normal brain stem and cerebellum. Operation was postponed; she became perfectly well, has had a baby and has remained in perfect health ever since. Unquestionably it was a labyrinthitis and not brain tumor. A man getting off a train has a sudden explosive sound in his ear, falls to the platform, is dizzy and sick in bed for a week. Right ear is stone deaf, static and cochlear; Wassermann markedly positive. Could anything be simpler to diagnose—destruction of the labyrinth? But it was nothing of the sort; it was a beginning acoustic tumor. Later he showed spontaneous vertical nystagmus upward, which together with absence of responses from one ear make the diagnosis of cerebellopontile angle tumor with pressure on the brain stem. Necropsy showed cerebellopontile angle cyst. Man, neurologic diagnosis, right frontal tumor; ear tests suggested left cerebellopontile angle tumor. However, they operated in the right frontal region. Necropsy showed left cerebellopontile angle tumor. An apparently healthy man with headache showed normal labyrinths and eighth nerves and yet the vertical canals failed to produce any responses; horizontal canals produced normal nystagmus but no vertigo. This phenomenon-complex indicated pressure within the fourth ventricle; this diagnosis appeared ridiculous because the man seemed in such perfect health. That night he was rushed to the hospital unconscious; next day he regained consciousness but complained of agonizing headache. Many physicians and neurologists pronounced it hysteria. We stuck to our conviction of an organic lesion in the fourth ventricle. Necropsy three days later showed abscess in the fourth ventricle. Internal hydrocephalus shows absence of reaction from vertical canals and impaired vertigo from horizontal canals. Our operative and postmortem findings suggest that the horizontal canal fibers are confined to the medulla and inferior cerebellar peduncle, whereas vertical canal fibers traverse the pons and middle cerebellar peduncle. Cerebellopontile angle tumor shows (1) "Crossed" past-pointing; both arms point inward or both arms point outward regardless of type of stimulation. (2) Not only is there total absence of reaction from ear on the side of tumor but vertical canals of opposite ear fail to produce responses, whereas horizontal canal of opposite ear gives normal reactions. This is due to pressure on the pons involving vertical canal fibers from opposite ear. In one case a decompression was done and then stimulation of the opposite side gave normal responses, showing clearly that pressure had been removed from the vertical canal fibers.

Dr. J. Holinger, Chicago: It seems to me that we have become too sanguine by the results of the examination of the static labyrinth, and are prone to forget the examination of the ear by means of the speculum and tuning forks. The statistics of brain tumors show that tumors of the acoustic nerve are not very rare, yet they are rarely diagnosed. Tumors of the acoustic nerve are only discovered at the necropsy. As to a division of the nerve supplies of the horizontal and the vertical semicircular canals, the same is true of the vestibular and cochlear nerves. This division may also give us pointers in trying to locate a tumor, as well as the division of the nerve supply of the horizontal from vertical canals. All of these points are equally important in fractures of the base of the skull, and in locating a blood-clot. The following incident may be of interest. Last December I saw a patient who had had a fall on a slippery sidewalk, after which he got up and walked home. A few days later he became drowsy. When I examined him his mind was not clear, but he still reacted to some questions, slowly and loudly put, and several times repeated. The examination by means of speculum and tuning fork allowed me to make a diagnosis of fracture of the base, running from the external canal of the right ear crossing the pyramid of the temporal bone and following the course of the eustachian tube. Meningitis; caloric test was contraindicated; the fluid might have gone into the skull cavity. Three days later the patient died, and I was requested by the coroner's jury to hand in a report independent of the coroner's postmortem report. A colleague who followed the whole proceedings told me afterward that my description of the fracture was more accurate than the coroner's.

Dr. George W. MacKenzie, Philadelphia: I wish to endorse practically everything Dr. Eagleton said, particularly with reference to the early symptoms that are possible of solution by careful otologic examination in cases of brain tumor long before there are symptoms of marked intracranial pressure, and, too, in reference to basal fractures In cases of basal fracture, Bezoldt found that one fourth of the fractures involve the temporal bone A basal fracture may involve the middle ear alone, the internal ear alone, or both combined In a case of basal fracture involving the middle ear alone, functional tests disclose the typical findings of involvement of the conducting apparatus When the inner ear is involved, there are the typical findings of a disease of the perceiving apparatus, furthermore, when the inner ear is involved, the facial nerve is usually involved with it It is important in all cases of basal fracture, therefore, to make a careful examination of the hearing function as well as the static function, since it gives us an important guide as to the prognosis and method of operation to be followed I recall one instance in which a general surgeon removed the stirrup in a case of fracture of the tegmen tympani, causing a pronounced deafness that would not have followed had the stirrup been left alone On the other hand, there are many cases of fracture through the labyrinth in which operation could be done successfully which are allowed to go on to meningitis and death simply through neglect to operate I believe all fractures involving the base should be examined carefully by the otologist and in case the temporal bone is involved, I would urge that the otologist perform the operation rather than leave it to the general surgeon I also want to mention a case in which I had diagnosed a tumor of the internal auditory canal, involving the seventh and eighth nerves I suggested the diagnosis of cysticercus, because the man had lived among dogs all his life In the decompression operation done later by a general surgeon, a great portion of the occipital bone was removed and the tumor not reached The patient died a short time after from shock The postmortem examination proved the correctness of my diagnosis Had this patient been operated on by an otologist following the method of removal of the labyrinth, slightly modified, the results would have been more favorable My plea is for accuracy in methods of examination, using what knowledge we have concerning the functions of the inner ear and their deviations from the normal when they are involved One of the gentlemen mentioned that a patient had a nystagmus to both sides There is no lesion of the vestibular apparatus or cerebellum that can produce a nystagmus to both sides When such findings are recorded, it is because of a mistaken observation Nystagmus of reflex origin is always in one definite plane and direction and should be observed with the patient looking straight ahead while the eyes are in a condition of rest When we record our observations in nystagmus in the side positions, we are bringing in an additional factor which has nothing whatever to do with the reflex

DR LEWIS FISHER, Philadelphia In the analysis of cases showing vestibular symptoms, in order to get as clear a conception of this subject as possible, we attempt to visualize the anatomy of the parts concerned We believe that the vestibular apparatus starts at the internal ear, and is connected with the various portions of the central nervous system by means of nerve paths The internal ear, however, is by far the most important portion of this vestibular apparatus Disturbances in equilibration cannot occur unless there is interference with this vestibular apparatus at some point The same can be said of nystagmus it can occur only when there is disease along the fibers which run to the eye muscles producing nystagmus We try to remember that in the internal ear as well as in the eighth nerve, apart from the acoustic fibers, there also run two other sets of fibers, one set to the eye muscles producing nystagmus, and another to the cerebral cortex, producing dizziness But these paths do not run together all the way, in the brain stem they part company The nystagmus fibers run to the eye muscles, while the fibers carrying the vertigo stimuli have the cere*bellum as their first objective point* These paths are different for the two sets of canals The horizontal canal fibers enter the cerebellar nuclei by way of the restiform body, and from there, leaving by way of the superior cerebellar peduncles, go to the temporal lobes of the cerebrum The vertical canal fibers continue higher up in the brain stem and enter the cerebellum by way of the middle cerebellar peduncle There is always an inseparable association in the minds of authors between nystagmus and past-pointing Bárany in his writings says that certain deviations in pointing occur in relation to either one component of the nystagmus or the other This is to be greatly regretted We have shown by experiments at the University of Pennsylvania that the slow component of the nystagmus has absolutely nothing to do with the dizziness and past-pointing that we are able to induce in patients by stimulating the labyrinth When such a relation appears it is simply a coincident Thus The rule as generally postulated, namely, that the past-pointing is in a direction opposite to that of the nystagmus, is not correct, for we have shown that if an individual is turned to the right with the head back, the resulting nystagmus is to the right, but the past-pointing is also to the right, and we believe that this subject could be greatly simplified if this differentiation between the two reactions were more generally understood In cerebral abscess, or tumor of the brain stem, or of any portion of the brain all the vestibular phenomena are produced either by irritation or by destruction of some of the vestibular fibers In patients exhibiting such vestibular disturbances only a careful examination of the ear can tell us whether the disturbance is in the labyrinth and eighth nerve or whether it is intracranial If in the latter, we are able to tell just where within the cranium these pathways have been interfered with For example, if in a case presenting vestibular symptoms we are able to produce nystagmus but no vertigo with past-pointing, we know that the disturbance must be in the vertigo pathways between the cerebellar peduncles and temporal lobes If, on the other hand, we stimulate the labyrinth and are able to produce dizziness with past-pointing but no nystagmus, then the interruption must be either in the pons or medulla oblongata Generally speaking, a careful examination of both labyrinths, and especially of each canal separately, enables us to test the integrity of the different pathways and locate lesions with considerable accuracy

DR CHESTER C. COTT, Buffalo Tumors which press on the auditory nerve or involve this nerve in its growth often cause a sudden onset of symptoms This is due to the fact that the resistance of the nerve is suddenly overcome. Before the onset of severe symptoms an examination would reveal cochlear nerve degeneration Later there occurs a severe attack of dizziness very likely following a trauma which the patient usually ascribes as the cause

DR ISIDORE FRIESNER, New York In addition to the anatomic reasons for the priority of auditory symptoms in tumors not only of the cerebellum or pons, but also of the nerve, we must not forget that there is a very marked difference in the viability—and conversely in the destructibility—of the two branches of the eighth nerve Not only is this true as far as the nerve trunk itself is concerned when subjected to pressure or involvement by a tumor mass, but Alexander has shown, from the examination of labyrinths which were subject to suppurative process, that this difference extends completely throughout the labyrinth itself For instance, the hairs, which are biologically distinct from the hair cells, show a difference in viability when they are subjected to the presence of pus in the intralabyrinthine cavities So with the tumor which involves, as far as its gross structures are concerned, the auditory and vestibular nerves equally, the primary disturbance will be in the auditory function—tinnitus or deafness Furthermore, there have been reported numerous cases in which in addition to the eighth the facial nerve was involved, and yet there was no paresis So that in the order of their susceptibility we consider the auditory nerve, but second the vestibular, and last, the facial In regard to nystagmus to both sides, it is true that in many of these cases the nystagmus movements are more marked to one side than to the other With brain tumors however, I have seen a vertical nystagmus directed not only upward but also downward. Of course this cannot be a physiologic nystagmus. It is a rhythmic movement of both eyes, and if we do not call this nystagmus both upward and downward, I do not know what we should call it.

Dr. Wells P. Eagleton, Newark, N. J.: We have all seen cases in which the otologists should be called in. Our general hospitals are crowded with otologic cases. Every neurologic ward has its otologic problems, and we could give great assistance there, if we could see the patients in time to make an early diagnosis.

THE FATE OF PHENOLSULPHONEPHTHALEIN WHEN INJECTED INTO THE ANIMAL ORGANISM

FACTORS OTHER THAN THE KIDNEY INFLUENCING ITS "RETENTION": PRELIMINARY REPORT *

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During the past few months I have been engaged in a study of the physiologic action of the thyroid. The general scheme followed has been to treat dogs with a continuous injection[1] of amino acids, sugars and other substances in conjunction with the injection of the active constituent of the thyroid, and to study the effect of the thyroid on the metabolism of the animals. Some animals respond vigorously, the injection of the thyroid constituent producing very high pulse rate and a great increase in the respiration, accompanied by an extremely severe general tetany and terminating in a temperature which occasionally reaches as high as 112. It was soon found that all animals can be divided into two classes, those which give this reaction and those which do not.

For certain reasons it seemed probable that the condition of the animal could be foretold by the use of some substance which would be a criterion prior to the injection of the thyroid hormone. Phenolsulphonephthalein was used for such a test and a few trials demonstrated that in those animals which had a high phenolsulphonephthalein retention, little or no effect was produced by the injection of the thyroid, and in those animals having a low phenolsulphonephthalein retention a vigorous response to the thyroid might be expected. The administration of the phenolsulphonephthalein was changed somewhat from the usual procedure, and 1 c.c. per hour of the standard solution (6 mg.) was injected continuously during the entire experiment. By taking samples of the urine every fifteen or thirty minutes, the exact condition of the animal could be closely followed. At first it seemed that the type of metabolism going on had some influence on the amount of phenolsulphonephthalein excreted. With a constant injection of glucose we have recovered as high as 98 per cent. of the phenolsulphonephthalein injected. This high return was not momentary but continued for several hours. When a dog was injected with amino acids it was found that a rather low phenolsulphonephthalein output resulted, and in one instance a maximum excretion of 47 per cent. was found. In a second animal the maximum was 52 per cent. As it seemed probable that the type of metabolism going on in the animal was one factor controlling the output of phenolsulphonephthalein, we were greatly surprised to find that on the injection of amino acids in a third dog the phenolsulphonephthalein output ranged from 80 to 86 per cent. for many hours. It was necessary, therefore, to go further back for an explanation of the phenolsulphonephthalein retention.

In order to determine whether the phenolsulphonephthalein was absorbed and held in the tissues, the dogs were killed and their organs examined for phenolsulphonephthalein. In no case were we able to recover any of the dye except slight traces in the blood. Phenolsulphonephthalein retention, therefore, assumed a new aspect; that is, phenolsulphonephthalein retention really means phenolsulphonephthalein destruction. The possible mechanism of the destruction of phenolsulphonephthalein may be, first, the hydrolytic cleavage of the substance; second, the oxidation of the compound, and third, reduction.

The first is improbable because it is unlikely that there is a specific enzyme in the body which will accomplish it. When an attempt was made to oxidize phenolsulphonephthalein with hydrogen peroxid, it was found to be extremely resistant. A similar trial with nascent hydrogen showed that it is easily reduced. It thus seemed probable that phenolsulphonephthalein in the body is destroyed by reduction. In order to establish this point a dog was killed, its various organs ground to a fine mash, and 1 c.c. of phenolsulphonephthalein was mixed with the tissues. After standing some hours the amount of phenolsulphonephthalein destroyed was determined. It was found that muscle and intestine destroyed a large percentage, that the liver destroyed practically 100 per cent., and that the spleen, pancreas, lung and kidney destroyed almost none.

If the destruction of phenolsulphonephthalein in the tissues is caused by its reduction, the presence of an oxidizing atmosphere should prevent the destruction of the dye. To show this a liver mash was mixed with phenolsulphonephthalein, one portion was covered with liquid petrolatum to exclude oxygen, a second was left exposed to the air, and through a third portion air was bubbled. In the portion in which no oxygen was present, the phenolsulphonephthalein was totally destroyed; in the dish standing open, a large percentage, but not all, was destroyed; and in the portion through which air was bubbled, only a portion of the phenolsulphonephthalein was destroyed. Blood both in the oxidized and reduced form will not destroy phenolsulphonephthalein. Its destruction in the tissues is caused by a more powerful reducing action than that of completely reduced hemoglobin. Since blood is the carrier of oxygen in the body, it seemed probable that there would be a difference in the destruction of phenolsulphonephthalein by a perfused liver if the blood in the perfusing fluid was oxygenated or reduced. In the presence of oxygenated defibrinated blood, as much as 80 per cent. may be recovered after perfusion of a liver. In contrast to this, 95 per cent. of the phenolsulphonephthalein perfused through a kidney was recovered, although reduced hemoglobin was used.

These experiments have been confirmed and enlarged with the object of showing the presence of an enzyme in the tissue which is capable of exerting a very strong reducing action. It is not probable, however, that this enzyme acts on the phenolsulphonephthalein itself. Phenolsulphonephthalein is not affected by mild reducing agents such as hydrogen sulphid, sulphurous acid,

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* From the Mayo Clinic.

* Presented before the Interurban Clinical Society, Rochester, Minn., Dec. 8, 1916.

[1] Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, The Journal A. M. A., Dec. 11, 1915, pp. 2067-2070.

ammonium polysulphid and formaldehyd, and apparently will not react except with nascent hydrogen itself The presence of reducing enzymes in plant and animal tissues has long been known, and the fact that phenolsulphonephthalein is apparently reduced only by nascent hydrogen and is destroyed in the animal organism furnishes grounds for ready speculation concerning the possibility that hydrogen is produced by the tissues of the body If hydrogen itself is not produced, there is at any rate a most powerful reducing substance The reducing action appears to proceed according to the laws generally followed by enzymes, that is, it is destroyed by heat, and its activity is greatly influenced by minute amounts of acid and alkali and also by the presence of sugars and other materials The fact I wish to emphasize is that this enzyme continues to exert reducing action both in the presence and in the absence of oxygen Is it not probable that a primary step in metabolism is a reduction with the production of hydrogen which then reacts with hemoglobin? If the supply of oxygen from hemoglobin is adequate for the reducing action of the cells, then phenolsulphonephthalein can no longer be reduced, as it is protected by an excess of oxygen However, if the reducing action of the cells is greater than can be satisfied by the oxygen from the hemoglobin, phenolsulphonephthalein is reduced Fundamentally, therefore, what the phenolsulphonephthalein tests show is the ratio between the rate of reduction and the supply of oxygen in the body Just what the phenolsulphonephthalein shows in any particular case obviously depends on so many factors that it is impossible to localize all the effects in any one organ

RESULTS OF TESTS

Tissue	Amt Gm	Phenolsulphonephthalein Cc.	Treatment	Phenolsulphonephthalein Recovered Per cent
Sheep s liver	50	1	Undiluted + liquid petrolatum	0
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Sheep's liver	50	1	150 c c 0 8% NaCl + liquid petrolatum	47
Sheep's liver	50	1	150 c c 0 8% NaCl exposed to air	78
Sheep s liver	50	1	150 c c 0 8% NaCl aerated	90
Human liver	25	1	40 c c 0 8% NaCl	10
Human liver	25	1	39 5 c c 0 8% NaCl + 0 5 c c 3% H O	30
Human liver	25	1	35 c c 0 8% NaCl + 5 c c 3% H O	30
Human liver	25	1	25 c c 0 8% NaCl + 15 c c 3% H O	44
Human liver	25	1	40 c c 0 8% NaCl + 0 5 gm glucose	9
Human liver	25	1	40 c c 0 8% NaCl + 5 gm glucose	20
Human liver	25	1	40 c c 0 8% NaCl + 15 gm glucose	33
Human liver	25	1	39 5 c c 0 8% NaCl + 0 5 c c n/10 NaOH	11
Human liver	25	1	35 c c 0 8% NaCl + 5 c c n/10 NaOH	25
Human liver	25	1	25 c c 0 8% NaCl + 15 c c n/10 NaOH	77
Human liver	25	1	40 c c 0 8% NaCl + boiling	100*
Human liver	25	1	40 c c 0 8% NaCl allowed to become putrid by standing 4 days	30†
Human kidney	25	1	40 c c 0 8% NaCl	90
Human kidney	25	1	39 5 c.c 0 8% NaCl + 0 5 c c 3% H O	90
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Cat's blood	50	1	Perfused through liver for 30 min before addition of phenolsulphonephthalein	100‡
Dog's blood	50	1	Aerated with CO for 15 hours	95 96
Cat s blood and liver	whole	1	Blood perfused through liver 2 hours	45
Cat's blood and kidneys	whole	1	Blood perfused through kidneys 2¼ hours	95
Rabbit liver	32	1	64 c c 0 8% NaCl + 0 25 gm glucose	79
Monkey liver	26	1	50 c c 0 8% NaCl + 0 25 gm glucose	39
Beef liver	30	1	Undiluted at 5 C	52
Beef liver	30	1	Undiluted at 25 C	33
Beef liver	30	1	Undiluted at 35 C	26
Beef liver	30	1	Undiluted at 25 C + 0 5 gm glucose	25
Beef pancreas	30	1	Undiluted	82
Cat s muscle	25	1	Undiluted mash	38
Cat's intestine	25	1	Undiluted mash	34
Cat's liver	25	1	Undiluted mash	0
Sheep s spleen	50	1	Undiluted mash	90

* Enzyme entirely destroyed
† Enzyme partially destroyed
‡ Blood + phenolsulphonephthalein stood 30 hours

The presence of a slight acidosis increases the capacity of the tissues for absorption so that they will retain the dye so firmly that it cannot be washed out with physiologic salt The addition of a small amount of sodium carbonate will counteract this, and physiologic salt will then remove the dye from the tissues Furthermore, in the presence of an increase in the hydrogen ion concentration, the action of the enzyme is apparently more vigorous, resulting in greater destruction of phenolsulphonephthalein Acidosis is not controlled by any one organ, but is a condition which may result from many causes That it plays its part in the destruction of phenolsulphonephthalein cannot be doubted Another great factor is the rate of the circulation of the blood If for any reason the blood passes through the tissues at a slightly diminished rate, the amount of oxygen supplied to the tissues is reduced and the excess necessary to protect phenolsulphonephthalein from destruction is no longer present, thus a greater destruction of the dye results Another factor would be a condition of anemia, in which the oxygen-carrying capacity of the blood is greatly reduced Finally also the lungs must play an important part, as improper aeration of the blood would cause inability of the hemoglobin to furnish enough oxygen to protect the phenolsulphonephthalein from destruction We have produced a drop in phenolsulphonephthalein output from 76 to 19 per cent in an animal receiving a continuous injection of phenolsulphonephthalein, by simply interfering with its respiration When the respiration was again normal, the output rose to 60 per cent If the kidney does not readily pass the dye, it is returned to the circulation and the tissues have a prolonged action on it, resulting in great destruction

There is one condition which I should like to mention in which this enzyme with its ability to produce extremely powerful reducing substances, if not nascent hydrogen itself, may play an important part It seems highly probable that in uremia, when there is a condition in which phenolsulphonephthalein is reduced, other substances must be reduced, not directly by enzyme action but by the action of hydrogen or its substitute Such reduction going on constantly within the tissues of the body is at least theoretically capable of producing compounds which normally could not be present, and to these compounds originating within the organism itself we may attribute some of the clinical symptoms

For the treatment of blood, tissues and other bodily fluids so that a phenolsulphonephthalein test may be made, a method somewhat similar to one already described has been used[2] The material to be tested is made to some definite volume and placed in a beaker From 10 to 15 c c of concentrated ammonia are added, and from 5 to 10 gm of calcium chlorid The solution is then boiled The calcium precipitates the proteins, and this precipitation, in the presence of ammonia, leaves the dye in solution If there is a slight opalescence following this treatment, it has been found that the addition of ammonium phosphate, which will precipitate calcium phosphate, will remove the last traces of turbidity and leave a solution which can be accurately matched with the standard The water is allowed to boil off until somewhat below the original volume The solution and precipitate are returned to the original measuring vessel, cooled, made up to the original volume and filtered

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[2] Rowntree L G Hurwitz S H and Bloomfield A L An Experimental and Clinical Study of the Value of Phenoltetrachlorphthalein as a Test for Hepatic Function Bull Johns Hopkins Hosp 1913 **24,** 327 342 Whipple G H Peightal T P and Clark A J Tests for Hepatic Function and Diseases Under Experimental Co tions Phenoltetrachlorphthalein ibid 1913 **24,** 343 357

In the tests recorded in the accompanying table, the same procedure was followed throughout. The finely ground tissue was mixed with 1 c.c. of standard phenolsulphonephthalein solution and allowed to stand undiluted or diluted with physiologic salt and other additions, as shown. The solutions were preserved with toluene, and bacterial action can be ruled out as a possible factor of the destruction. Dilution appears to influence greatly the amount of phenolsulphonephthalein reduced, probably by simply diluting the concentration of the substance reducing the phenolsulphonephthalein. Another factor which may be of influence here is the diminished activity of the diluted solution. The partial destruction of the enzyme by simply allowing the liver mash to stand in the laboratory until in a putrid condition is of interest. Although there is no doubt about the presence of bacteria in this case, and although bubbles of gas were being given off by the solution, the destruction of phenolsulphonephthalein was much less than before the liver had become decayed. This loss of action when the tissue became decayed suggests that the reducing enzyme is more active in living functioning cells, and that the destruction of phenolsulphonephthalein in these experiments and in the body is not caused by the degenerative processes going on in dead cells. Whether or not the favoring action of glucose on the destruction of phenolsulphonephthalein is of significance is not now certain, but it is of interest to note that the solution causing the greatest destruction of phenolsulphonephthalein contained small amounts of glucose.

STERILITY STUDIES

WITH PARTICULAR REFERENCE TO WEAK SPERMATOZOA, DIAGNOSIS AND TREATMENT *

V. D. LESPINASSE, M.D.
CHICAGO

To satisfactorily diagnose and treat sterility it is essential that it be considered a dual problem, involving both the husband and wife. At the present time there is a marked lack of cooperation between gynecologists and genito-urinary surgeons in the diagnosis and treatment of this type of patients. There are types of sterility which are definitely due to the male; there are also types, fewer in number, however, and much harder to diagnose, that are definitely due to the female, and there is a large class of patients who come stating that the wife has been examined and nothing can be found and the husband has been examined with a negative result, but no children appear. This type of case has, up to the present, been attributed to the woman, but on very insufficient evidence. Evidently something is wrong somewhere; hence my plea is that these cases should be undertaken at least with very marked and close cooperation between the different men, or one man should qualify himself sufficiently to work out these cases alone. In determining the cause of sterility of a given couple it should be considered under the following heads:

1. Obstructions in the sexual tract of the male.
2. Obstructions in the sexual tract of the female.
3. Absolute failure of, or imperfect development of, the essential male elements.
4. Absolute failure of, or imperfect development of, the essential female elements.
5. Alterations in the secretions of the female sexual tract so that her secretions are destructive to the life of the spermatozoa.

Obstructions in the Male Generative Tract.—This class of cases is easily diagnosed as they discharge a semen with complete absence of spermatozoa. The only treatment for these obstruction cases is surgery, with removal or anastomosis around the obstruction. What particular operation is necessary to be performed depends on the location of the obstruction. The possible operations are vaso-epididymostomy, either with the vas and epididymis of the same side or the vas and epididymis of opposite sides; Lespinasse sac operation, resection of the vas and end to end union with the vas on the same side or with the vas on the opposite side. Urethral obstructions should receive appropriate dilatation or operation.

Obstructions in the Female Sexual Tract.—There are two places in the female tract where obstructions are likely to occur, namely, the tubes and the cervix. Tubal obstructions can be definitely diagnosed by laparotomy and catheterization of the tubes. If this is not considered feasible the diagnosis must be made by inference either by a history of some pelvic disease likely to produce adhesions or (after determining that the husband has a normal sperm) by the recovery of motile sperm from the uterine fundus several hours after coitus. To aid us in recovering sperm from the fundus it is advisable to do a direct uterine insemination and from four to twenty-four hours later examine the uterine secretions for living sperm. If the sperm are actively motile we infer that the cause of the sterility is either tubal obstruction or a defect of ovulation. Cervical obstructions can be cured by direct uterine insemination easier than by operation directly on the cervix, as these obstructions are slight and do not prevent the passage of the impregnating catheter. No doubt there are cases in which it will not pass, but they are extremely rare.

Absolute Failure of, or Imperfect Development of, the Essential Male Elements.—This is the type of case that I particularly wish to call to your attention and to study carefully. Semen is easily obtained and should be carefully studied, not only as to spermatozoa, but as to all the other elements as well. Pus is present occasionally and there are marked differences in the coagulating properties of the semen of different men, although sterile semen shows much less coagulating power than nonsterile. The spermatozoa deserve special study. The function of spermatogenesis is one of the highest and most differentiated of bodily functions. It is quite complicated and hence one would expect to find many defects and abnormalities in its product (namely, spermatozoa).

Process of Spermatogenesis.—Spermatogenesis is affected adversely by many things, particularly the Roentgen ray, also by environment and the state of health; in debilitated and weakened conditions spermatogenesis ceases or is markedly defective. Diet also has a great influence on the production of the spermatozoa and in animals the season is a very important factor. In man, however, there is no definite breeding season, as is proved by the fact that the same number of babies is born each month of the year. All these factors influence spermatogenesis in a destructive way. To influence spermatogenesis in ammonium polysulphid and formaldehyd, and apparently will not react except with nascent hydrogen itself The presence of reducing enzymes in plant and animal tissues has long been known, and the fact that phenolsulphonephthalein is apparently reduced only by nascent hydrogen and is destroyed in the animal organism furnishes grounds for ready speculation concerning the possibility that hydrogen is produced by the tissues of the body If hydrogen itself is not produced, there is at any rate a most powerful reducing substance The reducing action appears to proceed according to the laws generally followed by enzymes, that is, it is destroyed by heat, and its activity is greatly influenced by minute amounts of acid and alkali and also by the presence of sugars and other materials The fact I wish to emphasize is that this enzyme continues to exert reducing action both in the presence and in the absence of oxygen Is it not probable that a primary step in metabolism is a reduction with the production of hydrogen which then reacts with hemoglobin? If the supply of oxygen from hemoglobin is adequate for the reducing action of the cells, then phenolsulphonephthalein can no longer be reduced, as it is protected by an excess of oxygen However, if the reducing action of the cells is greater than can be satisfied by the oxygen from the hemoglobin, phenolsulphonephthalein is reduced Fundamentally, therefore, what the phenolsulphonephthalein tests show is the ratio between the rate of reduction and the supply of oxygen in the body Just what the phenolsulphonephthalein shows in any particular case obviously depends on so many factors that it is impossible to localize all the effects in any one organ

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

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Sheep's liver	50	1	Undiluted exposed to air	Trace
Sheep's liver	50	1	150 c c 0 8% NaCl + liquid petrolatum	47
Sheep's liver	50	1	150 c c 0 8% NaCl, exposed to air	78
Sheep's liver	50	1	150 c c 0 8% NaCl, aerated	90
Human liver	25	1	40 c c 0 8% NaCl	10
Human liver	25	1	39 5 c c 0 8% NaCl + 0 5 c c 3% H_2O_2	30
Human liver	25	1	35 c c 0 8% NaCl + 5 c c 3% H_2O_2	30
Human liver	25	1	25 c c 0 8% NaCl + 15 c c 3% H_2O_2	44
Human liver	25	1	40 c c 0 8% NaCl + 0 5 gm glucose	9
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Human liver	25	1	39 5 c c 0 8% NaCl + 0 5 c c n/10 NaOH	11
Human liver	25	1	35 c c 0 8% NaCl + 5 c c n/10 NaOH	25
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Human liver	25	1	40 c c 0 8% NaCl + boiling	100*
Human liver	25	1	40 c c 0 8% NaCl, allowed to become putrid by standing 4 days	30†
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Beef liver	30	1	Undiluted at 35 C	26
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Beef pancreas	30	1	Undiluted	62
Cat's muscle	25	1	Undiluted mash	38
Cat's intestine	25	1	Undiluted mash	34
Cat's liver	25	1	Undiluted mash	0
Sheep's spleen	50	1	Undiluted mash	90

* Enzyme entirely destroyed
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The presence of a slight acidosis increases the capacity of the tissues for absorption so that they will retain the dye so firmly that it cannot be washed out with physiologic salt The addition of a small amount of sodium carbonate will counteract this, and physiologic salt will then remove the dye from the tissues Furthermore, in the presence of an increase in the hydrogen ion concentration, the action of the enzyme is apparently more vigorous, resulting in greater destruction of phenolsulphonephthalein Acidosis is not controlled by any one organ, but is a condition which may result from many causes That it plays its part in the destruction of phenolsulphonephthalein cannot be doubted Another great factor is the rate of the circulation of the blood If for any reason the blood passes through the tissues at a slightly diminished rate, the amount of oxygen supplied to the tissues is reduced and the excess necessary to protect phenolsulphonephthalein from destruction is no longer present, thus a greater destruction of the dye results Another factor would be a condition of anemia, in which the oxygen-carrying capacity of the blood is greatly reduced Finally also the lungs must play an important part, as improper aeration of the blood would cause inability of the hemoglobin to furnish enough oxygen to protect the phenolsulphonephthalein from destruction We have produced a drop in phenolsulphonephthalein output from 76 to 19 per cent in an animal receiving a continuous injection of phenolsulphonephthalein, by simply interfering with its respiration When the respiration was again normal, the output rose to 60 per cent If the kidney does not readily pass the dye, it is returned to the circulation and the tissues have a prolonged action on it, resulting in great destruction

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3 Absolute failure of, or imperfect development of, the essential male elements
4 Absolute failure of, or imperfect development of, the essential female elements
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Obstructions in the Male Generative Tract This class of cases is easily diagnosed as they discharge a semen with complete absence of spermatozoa The only treatment for these obstruction cases is surgery, with removal or anastomosis around the obstruction What particular operation is necessary to be performed depends on the location of the obstruction The possible operations are vaso-epididymostomy, either with the vas and epididymis of the same side or the vas and epididymis of opposite sides, Lespinasse sac operation, resection of the vas and end to end union with the vas on the same side or with the vas on the opposite side Urethral obstructions should receive appropriate dilatation or operation

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association Detroit June 1916

a constructive way, one should investigate all these factors and correct whatever is wrong with any of them There is much clinical and experimental evidence that destruction of the pituitary, particularly the anterior lobe, causes a sexual nondevelopment, also that suprarenal tumors cause marked sexual precocity From these data it has been considered worth while to give patients with absence of spermatozoa and no obstructive lesion, and with weak or imperfectly developed spermatozoa, desiccated anterior lobe of the pituitary and desiccated suprarenal gland, particularly the cortex In three cases in which there was complete absence of spermatozoa with very small hard testicles, spermatozoa were not produced in the semen by this therapy In one case, that of Mr D , in which there were few spermatozoa, and what few were present had large heads and no motion, there was a marked improvement following the administration of 40 grains of anterior lobe of the pituitary and 12 grains of desiccated suprarenal daily for one week The second week there was an improvement over the first week The third week the conditions were the same as at the end of the second week At the present time (six months) the condition is approximately normal as regards morphology, the spermatozoa are slightly decreased in number and the sperms have about one half to two thirds of the normal motility and have normal staining reactions As a matter of fact most of our clinical examinations of semen consist simply of determining the presence or absence of spermatozoa, and if present, if they are motile, and do not include careful detailed examination of the rate of movement, morphology, staining reactions and structure of the sperm Clinically these cases are of two types, the cases in which there is absolute failure of spermatogenesis and those that show defective spermatogenesis The first type show azoospermia, but give no history of any testicular disease or injury and on examination show a small, hard testicle with a normal epididymis I have treated these patients with dry anterior lobe of the pituitary and suprarenal cortex, but as yet these dried glands have failed of result I now have one of these patients on six fresh glands daily to see if we can obtain a result with the fresh gland

Early in this work with sterility I was struck with the number of cases presented in which both the husband and the wife stated that they had been examined and were all right On reexamination it was found that the wife was gynecologically normal, but the semen of the husband contained sperm that on careful examination showed numerous defects The motility was much reduced and in some was practically absent The duration of the motility was materially shortened, from a normal of five to six hours down to a few minutes The character of the motility was changed In normal sperm one to two hours old practically every sperm has a progressive movement In these specimens it was noted that many of the sperms had no motion at all, many had a lashing to and fro motion, but progressed very little, while a few only had a slow progressive movement taking as high as thirty-two seconds to cross the one sixth field with No 1 eye piece, as compared to a normal of about eight or nine seconds Likewise the morphology may be markedly altered The following types of semen have been observed 1 The heads may be about twice as large as normal and may take the pink of the Jenner stain, frequently the neck and tail stain blue This picture is frequently given by sperm from the vagina one or two hours after intercourse 2 There may be sperm with a U-shaped tail and normal head and always motionless 3 We have the wryneck sperm usually with considerable motion This type has been found in one of my sac cases practically constantly 4 There may be a large head stained blue with a very thick neck piece and a short tail with slight motion

Motility of the Sperm In examining a specimen of semen as to the motility of the sperm there are several factors that should be considered (1) the time that has elapsed since the semen was ejaculated, (2) the conditions under which it has been kept, and (3) the viscosity of the semen

In a normal semen one to two hours old and kept either at body temperature or around 60 or 70 degrees practically every sperm should be motile, most of them will be progressing, some few will simply be moving in situ or making little progress If the semen is markedly clotted, the progressive motion will be much slower, but the attempts at progression and the movement in situ will be very active As time goes on and the clot thins, the progressive motion will become more and more active, so that a sperm that would take ten seconds to cross the one sixth field will cross it in from six to eight seconds From now on one will notice more and more sperm that have ceased to progress, showing a backward and forward movement only, and even this motion gradually becomes less and less and finally ceases

Coincidentally with these changes, the general rate of progressive movement lessens, and we have in the picture many motionless sperms, many moving in situ, and a few actively progressing In from five to ten hours in normal cases, depending on external conditions, all movement ceases In the specimens which I have considered to be weak spermatozoa, we find many absolutely motionless and at the end of from one to two hours some few only slightly moving, and a few that will have various grades of motion up to approximately the normal In other words, the motility of the spermatozoa grades from normal to those that show absolutely no motion at all The weakest case I have encountered with any movement at all was of spermatozoa which was absolutely motionless at the end of one hour after intercourse, at the end of one-half hour there was some slight motion and at the end of three quarters of an hour there was very slight motion The semen in this case was examined many times and these conditions were always observed, careful account of the time of ejaculation was taken in each instance and the spermatozoa transported in an ideal and constant manner

The normal rate of movement (always timing the fastest sperms) across the one sixth field No 1 eye piece is as follows In semen two and one-half hours old on a cold, rainy spring day at room temperature the speed was 6, 12, 8, 14, 6, 20, 8, 20, 16, 6, 8, 8, 26, 14, 10, 4, 8, 14, 12, 16 seconds The same semen three hours and ten minutes old showed none motionless, few moving in situ, and the following speeds 14, 18, 16, 19, 10, 18, 12, 14, 10, 12, 12, 10, 13, 16, 18, 16, 12, 14 seconds The same semen five hours old shows many motionless sperms approximating one half as many just moving to and fro and not progressing and those that were progressing gave the following speeds 18, 8, 15, 14, 14, 8, 18, 10, 11, 15, 12, 24, 22, 18, 18 The same semen nine and one-half hours old showed two sperms with their tails moving

Cases Showing Decreased Motility Mr B, electrician, denied any testicular disease Examination showed the semen deficient in coagulating properties and the spermatozoa took an average of twenty-three seconds to cross the field at one examination, thirty-two seconds in another

Mr D, first examination, showed a few spermatozoa with large heads and absolutely no motion After taking pituitary gland for about one month examination five months later gave the following findings Spermatozoa numerous, semen 8 c c in amount, specimen one and one-half hours old showed as the speeds of the spermatozoa 18, 36, 10, 14, 15, two hours old 12, 15, 10, 16, 18, 20 In four hours all motion had ceased It was noted with each examination that there were many spermatozoa that were absolutely motionless

Mr T, millinery salesman, small man, not particularly robust Semen one and one-half hours old showed slight coagulating properties The spermatozoa took the following time to cross the field 14, 26, 17, 28, 30 seconds

I have noted that many of these cases of weak spermatozoa show slight malformations of the urethra and testicles, such as hypospadias and nondescended testicles of slight degree

In this connection Cole's experiments with alcoholized sperm are of marked interest, namely, a female rabbit was bred to an alcoholized male and immediately afterward was bred to a normal male, using different breeds so that the young of the two males could be easily identified All of the young born were from the normal male When the alcoholized male was used alone, impregnation took place, evidently the alcohol diminished the motility of the spermatozoa, so that the normal spermatozoa reached and impregnated the ova before the alcoholized sperms arrived, but if the alcoholized ones were given time enough to reach the ova, they were capable of impregnation

Absolute Failure of, or Imperfect Development of, the Essential Female Elements We cannot obtain the ova for direct examination and can only infer from symptoms and signs that ovulation is lacking or imperfect (See under diagnosis of tubal obstructions) Defective development of the uterus can be determined by proper gynecologic examination

Secretions The normal secretions of the vagina are acid and the secretions of the cervix are alkaline Secretions can affect the spermatozoa in two ways either the normal secretions can be changed in such a manner that they are destructive to spermatozoa or the blood serum of the individual may be lytic for the particular spermatozoa that are introduced into the vagina, in the same manner that some blood hemolyzes other blood after the operation of direct transfusion

Destructive secretions can be diagnosed by one of two methods Huhner's cervical test, or by mixing the semen and the secretions from the vagina, cervix and uterine fundus on different slides and observing the motility of the spermatozoa from time to time The cervical test is carried out as follows The couple have intercourse in the normal manner and the wife comes to the office one hour afterward Normally there should be motion in the spermatozoa in the vagina, which are protected from the direct action of the vaginal secretions by the coagulating properties of the semen The spermatozoa that are intimately mixed with the vaginal secretions are practically always dead at this time Spermatozoa at this time obtained from the cervix normally show very active motion If the vaginal secretions are excessively destructive to the spermatozoa, or if the spermatozoa are weak and the secretions are normal at the end of one to two hours, most of the spermatozoa in the vagina are dead To determine the lytic action of blood serum on the spermatozoa, simply mix the blood serum of the wife with the semen to be examined and observe the motility of the spermatozoa from time to time Normally, motion should persist for several hours Alien blood serum kills spermatozoa in a few minutes In one of my cases blood serum of the wife killed the spermatozoa of the husband in a few moments, whereas controls in other serums showed the spermatozoa to move normally and other spermatozoa in the wife's serum moved for several hours This patient was treated with antispermatoxic serum prepared after the method of Metchnikoff As yet there has been no pregnancy Excessive acidity of the vaginal secretion is treated by an alkaline douche or by direct uterine insemination

Treatment of Weak Sperm Cases As the vaginal secretions normally are quite destructive to spermatozoa and as the distance from the uterine fundus to the fallopian tube is much less than from the vagina to the tube it seems rational to think that if these weak spermatozoa were placed directly into the uterine fundus they would have a much better chance of reaching the ovum and impregnating it than if they are thrown free into the vagina, as in normal intercourse, consequently, the best treatment for these weak sperm cases is the direct injection of the spermatozoa (uncontaminated by mixture of vaginal secretions) into the uterine fundus The best time to perform this operation is a few days before or a few days after the menstrual flow If done before, time should be allowed for the spermatozoa to reach the fallopian tubes before the menstrual flow commences If performed after the menses, the sooner after the cessation of the menstrual flow the better For this procedure it is necessary to obtain the semen as free from bacterial contamination as possible, hence one instructs the husband to thoroughly wash the penis with soap and water and thoroughly clean the folds of the preputial cavity The condom is rolled up and boiled and then applied to the penis After intercourse the condom is removed, a knot tied in the top and it is placed in a Dewar flask, corked and brought to the office In the Dewar flask the spermatozoa should be very actively motile at the end of two to three hours

The patient is now placed on the table in Sims' position, the cervix pulled down, the impregnating catheter passed for a distance of 1¾ to 2 inches into the uterus and then from 0 1 to 0 5 c c of semen are injected into the uterine cavity The catheter is withdrawn, the patient rests for ten or twenty minutes and then can get up and go home

CONCLUSIONS

Many cases of sterility attributed to the woman are due to weak spermatozoa

This type of case can be diagnosed by careful examination of the semen, as has been described in the foregoing

The cause of sterility is as often in the male as in the female, if not oftener

Treatment depends entirely on the cause

Obstructive cases, male or female, are operative

Weak sperm cases would indicate direct uterine insemination and glandular therapy, diet, modes of life, etc

Secretion cases necessitate appropriate therapy to check or modify the destructive secretions

Nonproduction of the essential elements, namely, spermatozoa or ova, would indicate glandular therapy

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ABSTRACT OF DISCUSSION

Dr W C Quinby, Baltimore We know little about the physicochemistry of spermatogenesis, and, as suggested, the question of the relation of the chemical environment to motility of the spermatozoon is a very important one We may learn in the future that by changing either the reaction or the viscosity of the surrounding medium, it may be possible to prolong the life and activity of the spermatozoa My own experience with sterility has been confined almost entirely to the mechanical or obstructive type, and I should like to mention, besides those obstructions which Dr Lespinasse has outlined, some instances in which the obstruction to the seminal passages is either in the ampulla of the vas, or even possibly in the ejaculatory duct I am sure that we are going to be able in the future to perform various plastic operations in these regions with a fair chance of restoring patency In regard to weak motility of the spermatozoa, or their absence without previous disease as a cause, there is in the literature a great deal which speaks for the importance of the so-called ductless gland therapy There have been several very suggestive observations in regard to infantilism in school boys Some of the big English schools have been tabulated, and out of several thousand boys those showing tardy puberty were found to be very markedly benefited by the administration of thyroid extract Its use is purely empirical, but in these cases thyroid extract caused descent of the testes and the normal development of those manifestations which we call the secondary sexual characteristics which had been lacking previously

Dr H L Sanford, Cleveland I have not studied the pathology of the semen as thoroughly as has Dr Lespinasse I have done some plastic work on dogs, but I have never tried Dr Lespinasse's sack operation I would like to ask Dr Lespinasse to give us a little of his technic of uterine insemination I have tried it in several cases, and in two or three instances pregnancy has resulted I do not know whether it was a result of my work or whether it was Providence

Dr A L Wolbarst, New York The genito urinary man who is treating sterility in the male ought also to know something about the sterile woman in the case That is to say, it is not enough to know that a man has sperm in his emission He must have more than that He must have a sperm that will survive the vaginal secretion, and that is one of the things we overlook when we examine a specimen in a condom I have examined any number of specimens in condom, and while I find that the spermatozoa may be apparently normal, when I study that same spermatic secretion in the vagina of the woman, the behavior of those spermatozoa is very different Spermatozoa may survive in a condom in a warm temperature for five, six or eight hours, and the spermatozoa of the same person, when the secretion is very acid, may not survive in the vagina more than half an hour or twenty minutes or ten minutes They vary considerably I examine the vaginal and cervical secretions before coitus in order to determine whether they are acid or alkaline, then I examine the spermatic secretion immediately after coitus, ten minutes after coitus, twenty minutes after coitus, and an hour after coitus and the amount of information obtained in these cases is sometimes startling You will sometimes find very active spermatozoa soon after they are deposited in the vagina, but within an hour the great majority are dead The inference to be drawn is very clear, that the man is not at fault—or rather, to put it another way, his sperma are not at fault, because they are deposited in the wrong kind of vagina I imagine that is why it happens that a man and woman may be sterile when living together, and then in subsequent marriages both the man and the woman may be fertile, because the spermatozoa are deposited in the proper soil Just what effect the vaginal secretions have on the sperm is not clearly understood Broadly speaking, a very acid vaginal secretion destroys the sperm, but how to make an acid vaginal secretion alkaline the gynecologists do not seem to know They say if you will irrigate with sodium bicarbonate it will make the secretion of the vagina alkaline I find that that is not at all effective The vagina is not a test tube, any more than the male urethra is a test tube, and something must be done by the gynecologists to prepare the soil for the spermatozoa by restoring the acid vaginal secretion to its normal character Probably in the normal case the spermatozoa have sufficient inherent vitality to overcome the hyperacid secretion, or better still, in the normal case they are deposited right in the mouth of the cervix and thereby escape the vaginal secretion entirely In these weak cases their action must be accelerated by improving the secretion of the vagina. The second point that is often overlooked in connection with sterility is this In doing the Martin operation of the epididymovasotomy we are apt to place too much dependence on the finding of the spermatozoa in the testicle Assuming that you are ready to make your anastomosis, you will find very often that the vas deferens itself is choked up with cheesy secretion undefinable under the microscope, and which I understand Dr Martin himself has observed but has been unable to determine the nature of I have found the vas occluded so that it has been absolutely impossible for a fine filiform to pass into it for any appreciable distance I do not know that this has ever been studied, nor do I know how it can be determined previous to operation But I do know that in trying to pass a probe or in trying to inject argyrol from the point of anastomosis to the vesicles we fail because of this cheesy stuff, and at the point of incision you can scoop it out of the vas with a fine spoon The thing to do in these cases would be to try to curet the vas deferens and empty it of this substance if it could be done

Dr Charles M McKenna, Chicago The question raised by Dr Wolbarst can be answered in the following manner Strictures of the vas can be treated in the same way that strictures of the urethra are treated, viz, by dilation This can be done by making a small incision in the vas below the external inguinal ring and passing a fine piano wire through the narrow portion of the vas until the vas has reached its normal capacity If necessary the piano wire can be left in the vas from five to fourteen days By this time, the lumen will be of normal size I also believe that this same treatment can be carried out in strictures of the fallopian tube when the woman is sterile I have sounded the fallopian tube and women have become pregnant afterward, while in the case of men, living spermatozoa have been found when they were sterile before

Dr J Leland Boogher, St Louis Sir Henry Thompson fifty or seventy-five years ago succeeded in producing a living English lord by injecting the uterus of a woman after copulation I believe it to be the duty of every genito-urinary man to examine the woman in these cases where sterility is pronounced and the desire for children is great It is not always possible for the uterus to be in a position to receive the spermatozoa, even when they are living and motile, which depends on the prostatic secretion Displacements of the uterus frequently prevent conception Secretions are accumulated in the uterus that are antagonistic to the development and growth and inception of the spermatozoa

Dr Louis E Schmidt, Chicago It is practically a weekly occurrence for me to see some one who is unable to have children Only recently I have seen several individuals of unusual physique and manly appearance, with absolutely no history of venereal disease In fact, they had never had intercourse previous to marriage Both these gentlemen were examined by our foremost physicians previous to marriage and pronounced absolutely well and fit for marriage I am under the impression that the general medical man does not take this functional condition into account He simply looks them over in a general way, as far as medical matters are concerned, and advises the individual to get married After he has been married a few years and there is no offspring there is always trouble I can recall numerous instances like that In connection with the examination of semen I am not in accord with the statement that, in the absence of spermatozoa, most of these cases will fall into the so-called obstructive type I can recall offhand dozens and dozens of cases in which I am absolutely positive no obstructive condition ever existed, and where the elements present were practically only prostatic in character I am under the impression that in all those instances there is some change or some cause for the lack of formation of the spermatozoa and in these cases up to the present time treatment of all kinds has been of no avail For the past four or five years or longer I have tried these different methods, but with absolutely no sign of change in any of these cases

Dr. V D Lespinasse, Chicago In reply to Dr Wolbarst I would say that the spermatozoa are protected from the vaginal secretion by the physiologic clotting of the semen, and not, I think, by any change in the reaction of the vaginal secretions The semen deposited in the vagina clots around the cervix, forming a sort of cup around the os, and from there the spermatozoa get into the cervix and into the uterus In cases in which the spermatozoa are intimately mixed with vaginal secretions the spermatozoa are killed quickly as a rule in one hour, but if you obtain a mass of semen and get the spermatozoa from the center, you will find that they will be normally motile even two or three hours after intercourse The yellowish white material that I spoke of I have observed in the vas several times The first time I saw it I thought it was normal sperm It is very deceptive When the vas is exposed it appears as if the vas was distended with normal sperm When you put this material under the microscope you see little globules that look like fat, but they do not take the sudan III and osmic acid stain Just before leaving Chicago yesterday I submitted some of my slides of this material to Prof F R Zeit, and he was not willing to express an opinion as to the exact character of these globules He would not say it was debris, but thought it was some degenerative product When you find this material you can be sure there is an obstruction further down in the vas and the material itself is not so thick but that it will come through on intercourse In regard to the technic of uterine insemination, there are two or three points about it The first is you cannot inject very much into the uterus The second is, you must use a very soft and very small catheter so that you can deposit not to exceed five or six minims, better about three, in the uterine fundus If you do not have a small catheter you will not deposit any semen in the uterus or you will deposit too much, and the woman will have a very severe colic Before insemination the presence and motility of the spermatozoa should be determined We have tried to standardize this work on an hour Let the couple have intercourse at home, and then get right up and come to the office It is remarkable the difference in the motility of the sperm that you will find Just recently I had a case in which I examined a woman who as a young girl had had a tuberculous peritonitis She is a strong and healthy woman now The husband is a healthy man with absolutely normally movable sperm There was a striking difference in the motility of the sperm taken from the vagina and those taken from the cervix at the end of an hour Those taken from the vagina were barely moving, while the cervical ones had an absolutely normal motility One little by-product of this work is the length of time of pregnancy We have had one baby now from this work, and the baby was born 280 days after the insemination, and that checks up with most of the literature of the cases in which they could check it from one intercourse—it runs from 270 to 290 days

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Need for Improvement in Care of Pregnant Women—According to S G Moore (*Med Press and Circular*, Nov 15 1916), who advocates the notification of pregnancy, mothers are dying in excessive numbers just as children died and still die in excessive numbers from preventable causes The majority of them do not come under the care of a duly qualified and legally registered medical practitioner until their condition is desperate, and until the opportunity of taking measures to prevent catastrophe is overpast. Pregnancy cannot be concealed, and ought not to be concealed, whether it be legitimate or illegitimate, and since it cannot be concealed, what valid objection is there to comply with a provision which has for its sole and exclusive object the welfare of the woman and her baby ?

THE OPERATIVE TREATMENT OF CRYPTORCHIDISM *

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The object of this communication is not to discuss the propriety of attempting to place the retained testicle in its proper place in the scrotum, but simply to describe in detail the method we employ to achieve this result The operation is essentially that described by Bevan, but we feel that many of its details have never been thoroughly discussed, and it is our purpose to describe these Such a description appears particularly opportune, since we are convinced that practically every testicle can be placed in the scrotum if the operation is carefully performed Several recent publications describing series of cases of which as many as 30 per cent have resulted in leaving the testicle within the abdominal cavity seem to call for some such detailed description

Let us preface our description with a few statements that appear to us axiomatic, and on which we justify the employment of an operation

1 The testicle retained within the abdomen is doubtless much more liable to teratomatous change than the normally situated testicle The testicle retained in the inguinal region perhaps shows a similar though lesser liability to malignant disease

2 Yet we find no evidence that the testicle which has been placed in the scrotum by operation is unusually subject to teratoma

3 The retained testicle has often lost its spermatogenetic function either by congenital deformity and obliteration of the epididymal tube, or by atrophy of the spermatogenic elements in the testicle itself Such atrophy is not likely to occur before puberty in an organ otherwise normal and with normal epididymis only

4 Hence there is every reason to operate at about the time of puberty in order to forestall atrophy If the operation discloses grave deformity and separation of the epididymis from the testicle, the occlusion of the duct may be taken for granted Yet this is no reason for not proceeding with the operation, since the testicle is doubtless safer from teratomatous malignant change and is certainly more decorative when in the bottom of the scrotum

5 Almost every retained testicle is associated with either clinical hernia or with a pouching of the peritoneum, which predisposes the patient to hernia The operation thus indicated for the cure of hernia is somewhat prolonged but not gravely complicated by the effort to replace the testicle in the bottom of the scrotum

6 The safety of the operation is attested not only by our own series of thirty-three operations with no deaths, but also by similar statistics from other authorities

7 Unless operation is called for by grave hernia at an early age it is safer not to attempt the procedure much before puberty, for the vessels are so small and delicate that they are likely to be torn unless the operator is unusually expert

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TECHNIC OF THE OPERATION

The skin incision is made as for inguinal hernia, extending obliquely from a point over the internal adbominal ring to a point about 1 inch below the external abdominal ring, the incision lying parallel to and about a finger's breadth above Poupart's ligament

As in the operation for hernia the dissection is carried down to the external oblique aponeurosis, which is then split, thus opening the inguinal canal Until this step has been made no attention is paid to the testicle, for any effort to free this is likely to result in mixing the operator up in a mass of adhesions

The inguinal canal having been opened, the cremasteric fibers lying over the contents of the canal (cord, testicle, hernia) are picked up and divided between two thumb forceps

Working within the fascial layer inside of the cremaster the contents of the cord are then separated and delivered as in the operation for hernia

The hernial sac is now sought for, in the upper part of the canal if necessary, opened and separated by blunt dissection from the spermatic cord

The testicle is now freed from the gubernaculum and other attachments below it, leaving it attached to the patient only by the spermatic cord

Now comes the delicate part of the operation, the lengthening of the vas and vessels In a minority of cases this can most readily be done by treating the spermatic cord as if one were about to operate for varicocele or for division of the vas First, the muscular and fascial compartment in which the pampiniform plexus lies is incised longitudinally and the veins picked out Then the smaller compartment, in which lies the vas with its vessels, is similarly opened and the vas picked out The spermatic cord is now represented by three separate bundles, the pampiniform plexus, the vas and its vessels, and the musculofascial envelope This last is divided and its ends carefully stripped back over the vessels and vas, the exuberant tissue being cut away This dissection is carried with especial care up toward the abdominal cavity until the point is reached at which the vas distinctly separates in its intra-abdominal course from the pampiniform plexus It will now usually be found that there is ample length of spermatic cord to permit the testicle to descend well into the bottom of the scrotum without any tension whatsoever

Certain exceptions may be noted, however, as follows

1 The younger the patient and the smaller the testicle, the less developed is the cord likely to be and the more intertwined with muscular and fascial fibers, so that in such cases (and they constitute the majority) it is impossible to make a clean separation of the vascular elements from the fascial capsule without tearing many and perhaps all of the vessels It will be found in such cases that fascial separation by snipping may be made here and there along the vessels and that a great deal of slack may be obtained by separation within the abdomen

2 If the testicle is originally found near the internal ring or within the abdomen, it is usually necessary to divide the pampiniform plexus, although atrophy will doubtless result from this, in order to bring the testicle down to the bottom of the scrotum

3 If the testicle is at or near the external abdominal ring the slack obtained in the veins is usually greater than that obtained in the vas, so that there is no reason to divide the pampiniform plexus

4 If, in spite of a deep dissection within the pelvis, the vas remains too short, about 1 cm may be gained by displacing it to the inner side of the internal epigastric vessels It has been suggested that the vessels be cut for this purpose, but we have found it perfectly feasible to perforate the fascia to the inner side of the internal epigastric vessels without cutting them, and to slip the testicle through the opening thus made As far as we are aware no direct hernia has resulted from this procedure

5 Retention of the arterial supply is of utmost importance, and it will sometimes be found that the artery of the vas short circuits, as it were, a loop of the vas itself, so that in order to save the vessel we must omit the unfolding of this loop

6 In four cases all of the vascular supply of the testicle was apparently destroyed, only the vas remaining to connect it with the body Yet in only one of these cases did sloughing result The others were considerably atrophied already and there is no evidence that they atrophied any further

The cord having thus been lengthened, the tunica vaginalis, which has doubtless already been opened, is inverted as for the operation of hydrocele

With two fingers the scrotum is opened down to its very base for the purpose of receiving the testicle This simple procedure would seem scarcely worth insisting on did we not know that one of the most experienced hernia operators in New York City has confessed that he has in the past placed almost 50 per cent of his retained testicles in the thigh instead of in the scrotum Apparently his surgical modesty was such as to forbid him from looking to see where he was putting the gland The dissection of the scrotum must be carried rather toward the perineum so as to get to the bottom of the sac and deeply enough so as to open the fascia right to the skin

The scrotum is now inverted on a finger so that it is turned inside out and brought up into the inguinal incision With a straight needle and a fine suture of chromic gut the testicle itself is then sutured to the bottom of the scrotum Two precautions are here necessary In the first place the suture must be placed in the testicle itself, for if the surrounding fascia is sutured there is so much laxity that the testicle may not be drawn down into the scrotum It is obviously improper to suture the epididymis to the scrotum for fear of obstructing the excretory duct, whereas a suture in the testicle itself does no harm The second precaution is to avoid very carefully any torsion of the testicle

With the finger withdrawn, the testicle enters the scrotum and is pulled down into place There it should lie without any tension whatsoever at least well below the pubic bone, preferably so low as to be opposite its fellow If the testicle does not lie spontaneously in good position it is our belief that no amount of suturing about the neck of the sack or suturing the testicle itself to the thigh will better the situation

The wound is now closed in the usual manner, beginning with closure of the hernial sac and then passing to closure of the inguinal canal It has not been our custom to transplant the cord as in the usual Bassini operation

It is noteworthy that three patients have come for a second operation, one a personal failure, the other two failures at other hands Each of the three was reduced with no real difficulty although the separation of adhesions considerably prolonged the operation The ultimate result was just as good as that obtained in primary cases

RESULTS

We have operated on forty-two testicles, twenty-two right, nineteen left, nine bilateral The average age of the patient was 19, the youngest was 5, the oldest 33 Five of the patients were between the ages of 5 and 9 years, all had excellent results excepting one operated on in 1907 He was 9 years of age at the time of operation, and both of his testicles were in the inguinal canal They were placed in the scrotum and sutured to the thigh, but they broke away and retracted into the inguinal canal again Eight years later the right one could not be felt, the left one lay near the external ring and was, by our present method of operating, readily placed in the scrotum, giving a good result One other patient, aged 16, had an extremely bad result The right testicle sloughed, the left retracted over the pubes In one other case the testicle is not in good position, being only just below the pubes and in danger of injury All of the other testicles operated on are in excellent position, that is, they hang free in the scrotum, although many of them are rather in the upper part of this sac On the other hand, a few of the testicles operated on are lower in the scrotum than their unoperated fellows

We have three times operated on testicles that have been badly operated on before All three operations were complete successes

Before operation three of the testicles lay in the abdomen, thirteen in the inguinal canal, twenty-three at or about the external ring Hernia was noted in all but eight cases

During the operation the pampiniform plexus of veins was cut to reduce all of the abdominal testicles, one half of the inguinal ones, and 30 per cent of those at the external inguinal ring Most of these operations, however, were performed before we had perfected our present technic With the present technic we have only once had to cut the vessels of any testicle that lay outside the abdominal cavity Including even our earliest cases, however, we claim 88 per cent good results, and no mortality

We have little to say about ultimate results A number of our cases have been followed several years, and we are fully satisfied that a patient whose testicle is in good position a month after operation is safe from any retraction of that organ into the inguinal canal We have no observations of any value on the spermatogenetic function in bilateral cases after operation None of the testicles operated on by us showed, either at the time of operation or subsequently, any evidence of neoplasm

ABSTRACT OF DISCUSSION

Dr John A Hawkins Pittsburgh There is no question that moving pictures such as Dr Keyes has shown illustrating nephrolithotomy and suprapubic cryptorchidism are of inestimable value and will be of more value as they are worked out In Pittsburgh Dr C L Bradford about nine months ago started to take some of these pictures, and kept it up for three or four months I have an idea that he became bankrupt and had to quit The expense is very great It is also rather hard on the operator The lamps used create an intense heat, which is all right for cold weather but in hot weather it is awful

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DIVERTICULUM OF THE URETHRA*

SIMON ENGLANDER, MD
CLEVELAND

Diverticula of the urethra, whether congenital or acquired, are of very rare occurrence, Ehrlich[1] having reported but seventy cases all told up to and including the year 1908 Haberern[2] three years later conceded that but twenty cases found in literature up to that time were authentic cases of congenital diverticula, the rest being of the acquired type

Of the two cases mentioned in this paper, Case 1 probably represents the acquired type, while Case 2 probably represents the congenital type as described by Grunfeld[3] and De Keersmaecker, who have seen six or seven similar cases and believe they are of the congenital variety These authors have described cases of small diverticula in the bulbous or prostatic urethra which they accidentally discovered during a urethroscopic examination for the purpose of discovering the cause of a persistent urethral discharge There was as in our case, no stricture or other obstruction present, nor was there any history of trauma, and the writers think that they are due to a defect in the urethral groove

Case 1—H W, aged 30, referred by Dr W O Osborne, had a mucopurulent discharge of several years' standing and wanted to know whether the discharge was infectious Externally the genitalia presented no abnormality, no tumors, scars, etc., being evident At about the junction of the membranous and prostatic portion a No 28 F sound met some resistance, but was finally passed into the bladder Cystoscopy revealed bladder capacity good, mucous membrane apparently normal, except at the trigon, where it seemed to be slightly congested The sphincter was regular Anterior urethroscopy, except for a very pale mucosa, was also negative Posturethroscopy with the Wossidlo showed a cavity on the right side in the membranous urethra, about 1 5 cm high by 0 5 cm in breadth Catheterizing this opening did not produce any pus The patient was seen only once and has not been heard of since

I believe that the diverticulum in this case was due to passage of sounds, was a false passage in fact, made while attempting dilation of the stricture

Case 2—H L, aged 32, referred by Dr W G Mussun complained of discharge of two years' standing There were no abnormalities, and no tumor visible or palpable externally Cystoscopy was negative Anterior urethroscopy showed a very pale mucous membrane, studded with many inflamed, gaping morgagnian crypts

Posturethroscopy with the Wossidlo irrigating urethroscope also shows a chronic fibrous condition of the mucous membrane, the colliculus was small and pale Just anterior and to the left of the colliculus, a small cleft presented itself transversely across the urethra, which on treatment with the Geraghty syringe could be catheterized to the depth of about ⅜ inch Its walls seemed rather resilient, as they gave way under the pressure of the irrigating fluid Its capacity was very small, but could not be determined accurately This case was very similar to the cases described by Grunfeld and De Keersmaecker, and later quoted in this paper

The patient was treated by instillations of silver nitrate up to 5 per cent into the diverticulum, and also by anterior and posterior dilations, and cauterization of the morgagnian crypts, but with practically no improvement in his condition

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* Read before the Section on Genito Urinary Diseases at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Ehrlich Zur Kasuistik und behandlung der Divertikel Beitr z. klin Chir 1908 59, 193

[2] Haberern Kongenital Divertikel der Urethra Ztschr f Urol 1911 41, 734

[3] Grunfeld Zur Lehre von der Divertikula der Harnröhre Halbmonatschr f Haut. u Harnkr 1915

Congenital diverticula present themselves usually as more of less spherical saclike dilatations of the urethra usually just behind the glans and always on the lower surface of the penis They are occasionally found at the penoscrotal angle, and may vary greatly in size from that of a pea, or they may take in the whole area from the scrotum to the glans penis In a case reported by Hendriksz, the capacity of the diverticulum was greater than that of the bladder The orifice of communication with the urethra may be very large, or it may be so small that no urine whatever enters it

No unanimity of opinion exists as to the etiology of congenital diverticulum of the urethra Voillemier believes diverticular formation due to partial lack of development of the spongy tissue of the urethra, and believes that it is almost identical with hypospadias formation in which there is in addition a defect in the skin De Paoli, likewise, is of the opinion that there is a primary atrophy and therefore an unresisting corpus spongiosum which allows of the dilatation of the urethra The most plausible and simple theory is that of Kaufmann, who ascribes the condition to the failure of the distal and proximal end of the urethra to unite at the time when the urine begins to flow out of the bladder The proximal end of the urethra becomes dilated, and when finally the union is made the dilatation remains as a diverticulum This theory explains very satisfactorily the frequent occurrence of congenital diverticula in the anterior urethra, and as further proof of his theory he cites the fact that the diverticula are immediately behind the glans penis

Dittel believes that diverticular formation is really a dilatation of the wall of the urethra, and attempts to prove this by microscopic findings, which show a mucous membrane identical with that part of the urethra from which it springs He does not consider the absence of the corpus spongiosum as opposed to his theory, as he believes this is easily explained by a pressure atrophy or by inflammation within the diverticulum

Bokay believes that diverticula are simply dilatations of the normal urethra

Of the French school, Dr Durand, quoted by Cabezas,[4] who reports two personal cases, believes that the condition is not one of simple arrested development but is more complex and should be considered as a disturbance of development, for microscopically he found the corpus spongiosum was perfectly formed, though varying in thickness, and covered the entire dilatation of the mucosa, consequently this lining does not form a simple hernia through an opening in the corpus spongiosum

Cabezas further goes on to say that in congenital diverticulum not only is the mucous membrane of the diverticulum continuous with that of the urethra but histologically the structure is the same as that part of the urethra from which it springs

Of American authors S H Watts[5] is the only one who has written extensively on the subject He cites in full all cases of congenital diverticula reported up to 1906, and believes that at least a very fair proportion of them can be explained by some form of obstruction to the urine in fetal life, such as valve formation, as described by Englisch, congenital strictures, narrowing of the preputial orifice and adhesions of the prepuce to the external meatus

Von Grigolow believes that diverticula are due to dilatations of accessory periureteral ducts which are themselves due to partial defects of the genital gutter When these ducts empty at a very acute angle into the urethra, they form valvelike obstructions which are often responsible for considerable difficulty in emptying the diverticulum in postnatal life

Suter[6] too explains the formation of diverticula by some congenital defect in the genital gutter In reviewing the literature up to 1908 he found only four cases which had been carefully examined histologically and presented a similarity in structure The lining membrane in these cases presented a papillary connective tissue layer and a stratified epithelial layer, which resembled the structure of the skin to a marked degree There was no spongiosum present surrounding the sac Suter's personal case presents a like structure, in fact, so marked was the line of demarcation between the tough white wall of the diverticulum from that of the bluish soft unresisting corpus spongiosum that there was no difficulty in separating the two, and removal of the diverticulum presented no difficulty He therefore concludes that from a histologic standpoint, at least, congenital diverticula are not simple dilatations of the urethral wall but must be looked on as epidermal pockets that communicate with the inferior wall of the urethra While he concedes that the diverticula are usually in the anterior urethra and often immediately behind the glans penis, he insists that they communicate with the urethra oftentimes at a point a considerable distance behind the glans, and were Kaufmann's theory correct, the orifice of the diverticulum should be a very short distance behind the glans

Embryologically he explains the defect in this way The urethra takes its origin from the genital furrow which, covered with epidermal epithelium, forces its way into the position which it is to occupy later as the urethral canal This canal, at first partially open, has at this time a communicating bridge of epithelium with the external surface The epithelium of the canal becomes cylindric, that of the communicating epithelial bridge remains squamous Normally the walls of the canal coalesce and become the urethra, and the epithelial bridge is absorbed It is the persistence of this communicating epithelial bridge that Suter believes is the cause of diverticular formation or of dermoid

SYMPTOMS

The first symptom, which is noticed in infancy, usually is the presence of a tumor and a disturbance in micturition Dittel, however, reports a case of a man of 57, whose symptoms had begun but a year or two before, yet histologic examination of the sac led him to believe the diverticulum of congenital origin There is an increased frequency, and as part of the urine is diverted into the sac, a stream lessened both in force and caliber, and as the diverticulum becomes further distended it encroaches more and more on the lumen of the urethra, causing an increased obstruction to the urinary stream The rapidity with which a diverticulum fills depends on the size of the orifice and to some extent also whether the opening is valvelike, with the free edge of the valve pointing toward the bladder In most cases, however, the diverticulum empties itself slowly drop by drop, after the urinary act is completed, and does not give rise to a great deal of trouble unless the sac becomes infected Not infrequently it becomes necessary to empty the sac by manual compression, especially when the opening is very small, or a valve interferes with the emptying of the diverticulum, causing dribbling of urine, and when communicating with the posterior urethra may cause an incontinence Laugier's patient voided normally, but the diverticulum filled first, and then the urinary stream commenced Should infection occur in the sac, the obstructive factors may make themselves much more evident and may become very acute and cause considerable apprehension as to life, or the condition may become chronic and may be the cause of the usual sequel of a long continued urinary obstruction, such as cystitis, hydronephrosis, pyelitis, pyelonephritis, etc Sudden urinary obstruction due to diverticular formation may follow excesses in drinking or in venery

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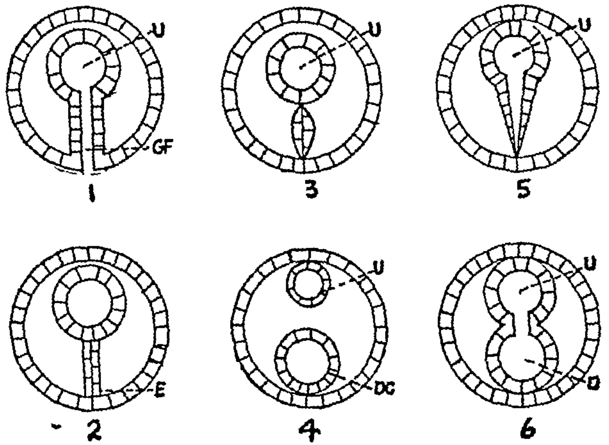
[4] Cabezas Congenital Dilatation and Diverticula with Case Reports, Am Jour Urol 1913 Von Denk uber Harnrohren divertikel Ztschr f Urol 1912 **6**, 621

[5] Watts Urethral Diverticula in the Male Johns Hopkins Hosp Rep 1906

[6] Suter Ein Beitrag zur Histologie und Genese der congenitalen Divertikel de in Harnrohre, Arch f klin Chir, 1908, **87**

Stone formation is very common in diverticula It is remarkable how many and how large the stones may be and not cause any serious discomfort Grube, quoted by Roith,[7] reports a case of diverticula containing 182 stones In the same paper the author describes his own case of stone in a diverticulum weighing 125 gm and measuring 6 by 5 5 by 4 5 cm, which to the patient's knowledge had existed since earliest childhood, and up to two years previous (he was now 36) had caused him no trouble whatever A soft rubber catheter, 20 F, passed by the stone with ease, and except for a little dribbling, for two years past, there was no interference with the urinary stream It is sometimes of interest to know whether the stone is the causal agent in diverticular formation or vice versa



Abnormalities in the development of the genital furrow *U* urethra *G F* genital furrow *D C* dermoid cysts *D* diverticulum

Goldberg[8] reports a case of persistent gonorrhea which was finally cured by lavage of a diverticulum the size of a hen's egg in the perineum The patient may first become aware of the diverticulum when, during an acute gonorrhea which is apparently cured, pus may be expressed at intervals from the urethra and with no reference to the length of time the urine was withheld, or to the time of day, and disappears just as quickly at it came Occasionally with irrigation under pressure with a Valentine syringe, some of the irrigating fluid may be forced into the diverticulum and cause a tumefaction

DIAGNOSIS

This is usually easy, for the patients usually come with a characteristic history, that is, the formation of a tumor on the ventral surface of the penis during micturition which gradually decreases in size after the urinary act is completed Occasionally the swelling is not noticed until infection, whether gonorrheal or otherwise, sets in Another method is to empty the bladder of its urine, and as the catheter is withdrawn and its eye is opposite the opening of the diverticulum, there is a sudden gush of urine as the sac empties itself Endoscopic examination, especially under water dilation, will often reveal the opening of the diverticulum A congenital diverticulum, too, will give some history of urinary disturbance, such as dribbling, straining or even complete obstruction since early infancy or childhood

The etiology of acquired diverticula is varied and may be due to one of many diverse causes Dilatations may form on the proximal side of strictures or at the site of postoperative scars Stagnation of urine may occur, and the weakened unresisting wall may give way, and form diverticula

Injuries to the urethra, whether accidental or operative, as also fistulas, retention cysts, hematomas or abscesses which burst into the urethra, may be the cause of the formation of diverticula In the male, retention cysts of Cowper's ducts or abscess formation of Cowper's glands, or chronic inflammatory conditions of the mucous follicles of the urethra, or the bursting of dermoids into the urethra are the most frequent causes It is evident, therefore, that acquired diverticula may be situated anywhere in the urethra, contrary to the congenital, which are practically always in the anterior portion of the canal

Careless instrumentation, followed by more or less urinary infiltration, abscess formation, and finally formation of diverticula, is the sequence of events sometimes experienced by the careless worker in the genitourinary field

In the same manner, falling astride the perineum may cause formation of diverticula first by secondary stricture formation and diverticula formation behind it, secondly by breaking down of a hematoma and the rupture of the abscess subsequently formed into the urethra, or thirdly by leaving at a traumatized area a locus minoris resistentiae and consequent dilatation and diverticular formation When calculi obstruct the urethra, they may be an etiologic factor

According to Watts, in diverticula formed behind strictures, the lining mucosa is always inflamed, often even destroyed, this being due to the hard, friable, almost nonelastic nature of the wall of the urethra behind the stricture When the diverticulum is due to an abscess formation or following the rupture of a cyst, the lining membrane is either granulation or scar tissue The mucous membrane of the diverticulum behind a stone is usually smooth and well preserved In all other respects the acquired resemble the congenital diverticula, that is, in their tendency to stone formation, obstruction to urine, etc

TREATMENT

For congenital diverticula this consists if possible in removal of the sac over a catheter in the urethra and the sewing of the edges into the canal so far as possible to restore its normal caliber Should there be any congenital obstruction such as stricture or valves they must be removed

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[7] Roith Ein Fall von ungewohnlich grossem Divertikel der Harnrohre Beitr z klin Chir 1908 **74,** 267 Aronstam Urethral Diverticula and Cul de Sacs Med Rec New York 1906 **70,** 298

[8] Goldberg Verhandl d deutsch Gesellsch f Urol 1908 **24,** 622

In acquired diverticula, the cause, such as stone, must be removed If the case is a recent one, the removal of the stone will at once cure the condition, while in an older case in which extensive changes have taken place in the wall of the sac, the return to normal will be much slower Diverticula due to stricture formation are cured by dilatation of the stricture, and owing to the fact that there are marked changes in the wall of the urethra, the restoration of the wall to normal is very slow

Diverticula due to rupture of dermoid cysts, abscess of Cowper's gland, etc, can as a rule easily be cured by excision of the offending sac

CONCLUSIONS

Congenital diverticula may be due to any one of several causes, and the theories of epithelial rests advanced by Suter, the theory of defect in or weakened corpus spongiosum as advanced by Kaufmann and others, or the theory of congenital obstruction as advanced by Watts are in the main correct, the various authors encountering a case or cases that they believe prove their contention

Diverticula may be the cause of persistent urethral discharge, whether specific or otherwise, and sometimes when infected may become a menace to life, may cause serious urinary obstruction, cystitis, pyelitis and pyelonephritis

While diverticula of the urethra are much rarer than bladder diverticula, and can usually be recognized easily, there are some cases in which there is no tumor evident, and only a casual urethroscopic examination or one for a persistent discharge will discover it [9]

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ABSTRACT OF DISCUSSION

Dr F W Robbins, Detroit Through the kindness of Dr MacGowan I recently saw an interesting case of diverticulum of the urethra This patient had been treated for stricture of the anterior urethra The young man had never had any venereal disease whatever, and had been under the care of an irregular physician for some little time The interesting part was that his symptoms were those of severe stricture of the urethra to the extent that he was obliged to wear a rubber blanket at night to keep the bed from getting wet We found the diverticulum about an inch from the meatus After incising the diverticulum and gradually dilating the urethra up to 28 the symptoms subsided The man had been a great sufferer mentally, but entirely recovered after a diagnosis had been made and proper treatment instituted

Dr Arthur B Cecil, Los Angeles I had thought that diverticula of the urethra were rather infrequent until I heard the discussion of Dr Englander's paper On account of the supposed rarity of the condition the following case might be of interest A man thirty-six years of age was seen by me in consultation with Dr McNab, of Los Angeles He complained of having a stricture and was in severe pain due to retention of urine A silver catheter was passed into the bladder with ease and emptied about 800 c c of urine, but as the catheter passed through the bulbous portion of the urethra there seemed to be pressure against it Examination of the scrotum showed a rounded sac about as large as an egg which fluctuated on pressure On turning the beak of the silver catheter downward it could be passed into this sac in the scrotum and when pressure was made on the sac it emptied through the catheter about 80 c c of cloudy urine The opening of the diverticulum was just back of the external sphincter muscle

Dr David W MacKenzie, New York About a year ago I reported a case of double urethra with a review of the literature There is no doubt that some of these cases are typical diverticula, but many of them are misplaced periurethral glands with dilated ducts, small paraurethras with one or more openings into the urethra, and the complete double urethas ending in blind pockets The patient I had last year had a stone in this canal, and when the stone was removed, he started passing his urine through it He came to our service to have the sinus closed up On opening the sinus we found a double urethra extending from glans to membranous urethra which we removed en masse I do not think we can catalog the congenital diverticula as belonging to any one class They come under true diverticula ducts of misplaced lobes of the prostate and periurethral glands and double urethras

Dr Charles M McKenna, Chicago Some of those cases are overlooked in the diagnosis I recall a patient, a man about 27 years of age, who came to me for advice regarding marriage within the next year He gave a history of gonorrhea of about two years' standing He had a hypospadias with an opening about one fourth of an inch back of the meatus I noticed on examination of the urine that the first glass was always cloudy and filled with pus while the second glass was clear He gave the history of being treated for about two years and could not notice any change I noticed after irrigation that I could expel pus from the urethra by running my finger along the posterior wall One day I noticed that the urethra was enlarged at one particular place and on pressure I was able to expel about half a dram of pus It contained gonococci The patient was sent to the hospital and the diverticulum cut down on and ligated off, the mucous membrane was examined It was found to correspond with that of the urethra and gonococci were found in the pus of the diverticulum

Dr Simon Englander, Cleveland I think that the acquired diverticula are a great deal more frequent than the congenital For this reason I think it depends on one's conception of what a diverticulum is as to which is the more frequent Just before I came here we had a case in the dispensary The man had had an operation for a bulbomembranous stricture You could with the Wossidlo irrigating cystoscope, as well with the Buerger cysto-urethroscope, see a scar in the membranous urethra The posterior urethra was considerably distorted Back of the colliculus was an overhanging shelf and under that a diverticulum Perhaps some would call that a diverticulum and others would not We did Since preparing this paper I have seen five or six of these cases, all of which I think were acquired rather than congenital, because there is a history of something having happened, traumatic or otherwise, and then some of these patients presented other symptoms which strengthened our opinion that etiologically the diverticula were acquired As to the question of cure of diverticulum, unfortunately I have not had an opportunity to do any operative treatment My treatment up to the present time has consisted of silver nitrate instillation I admit I have not had much success

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The Aim of Medical Science—Of all the sciences, medicine has always worked and studied that the lot of man might be easier—that the diseases which threatened the human race might be checked, that inhospitable climes might be made fit for human abode But of all the sciences, medicine alone has never had as its goal the discovery of agents for the destruction of man We have never prostituted our mighty enginery to the destruction even of an enemy This is, indeed, a glorious heritage and one we must not lose sight of —James M Putnam, M D, Address before Buffalo Academy of Medicine

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[9] In addition to the references already given, the following will be found of interest
Bagat Urethral Diverticula Med News 1895 **67**, 240
Eitner Zur Kasuistik der Harnrohren Divertikel, Wien Med Wchnschr 1909 **59**
Lessing Ein perineales Harnröhrendivert, Monatschr f Urol, 1904 **9**
Von Zeissl Ueber den Blasen verschluss und über die Trichter bildung der Hinteren Harnrohre Wien med Presse, 1896 **37**, 697

CONCEPTIONS AND MISCONCEPTIONS IN PSYCHANALYSIS *

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Not infrequently a discussion purporting to relate to a given subject expresses nothing more than the unsophisticated views of the speaker concerning some notion or other which he mistakenly conceives the subject to be Perhaps no theme has suffered more from the disfigurements of these naive tendencies than psychanalysis, so that one does well to distinguish between psychanalysis and rumors of psychanalysis

The truth is, psychanalysis labors under the grave difficulties surrounding any subject which offers us an entirely novel point of interpretation, and far more formidable than the barriers of novelty and strangeness is the fact that psychanalysis is a method which is essentially revolting to our conventional social consciousness, entailing harsh incriminations from which we would prefer to turn away It is a therapeutic procedure which our moral conventions hold in natural repugnance, it is an unpleasant discipline that thrusts before us those things which we dislike to look on But if the theory on which the method rests is correct, such an inbred antagonism to the precepts of psychanalysis is of the very essence of its thesis, for psychanalysis, rightly understood, is a method of treatment based on the recognition of a psychic conflict in the life of the patient arising precisely from his inherent revulsion against the artificial inhibitions which are imposed on him under the constitution of society The conflict is therefore a social one

It would seem, then, that we all have within us the elements of the neurotic diathesis, that the difference between the normal and the neurotic is more a matter of circumstances than of constitution, that the interval between the two is proportional rather than generic

If, therefore, psychanalysis, unlike the gently conciliatory procedures characteristic of other forms of psychotherapy, is a method whose specific task it is to lay bare the pious devices through which we seek to evade life's sterner verities, we shall very naturally incline to resent it as an impertinent intrusion Indeed, it requires no small measure of courage to view with equanimity the unwelcome factors which psychanalysis thrusts before our eyes

It is, then, because of the essential significance of psychanalysis, with its open hostility to the wide social repression of those insatiate biologic demands which belong, broadly speaking, to the sexual sphere, and the consequent affront it offers to our habitual sense of outward reserve, that I am led to utter a warning lest in estimating the value of this inimical method we allow traditional prejudice to distort our judgment

The psychanalytic method, introduced by Sigmund Freud, is, of course, concerned solely with the treatment of nervous disorders In reality the term "nervousness" or "neurosis," as commonly applied, is etymologically misleading, for the morbid condition involved in such psychic disturbances is not neural, it is moral There is question not of a disease of the tissues but of a disharmony of the personality, not of a lesion of organs but of a schism of consciousness We are dealing not with the pathology of the neural elements but with the psychology of the social element as presented in the individual unit, for the disturbances with which psychanalysis has to cope entail in every instance a psychic disharmony based on the individual's relation to the social environment It is an interesting fact that in every psychanalysis there is discovered the influence of some hidden presence who stands in each instance in the closest personal relation to the patient and constitutes the important factor in the production of the neurosis

Before considering, however, the theory, the instruments and the aims of psychanalysis, it may be well to mention certain misconceptions in regard to the method Perhaps we shall gain ground if, before attempting to say something of what psychanalysis *is*, I say a word as to what psychanalysis is *not*

Already I have made intimation of the element of sexuality as an etiologic factor in the manifestations we call neurotic Many will doubtless have heard of the inevitable implication in the psychanalytic method of treatment of the sexual sphere of the patient's life Some probably will either have explicitly heard, or have tacitly gathered, that psychanalysis presupposes the existence in the life of the patient of some secret perversion of the sexual instinct, and that it is the task of the psychanalyst to extort a confession of some such hidden misdemeanor Therefore it is but natural it, from the prevailing trend of current hearsay, it will have been inferred that this new method of psychotherapy proceeds on the assumption that nervous disorders—hysteria, obsessional and imperative states, so-called neurasthenia and psychasthenia—are invariably to be explained by the hidden presence of some abnormal mode of sexual indulgence, and, therefore, the origin of a neurosis, according to Freud's interpretation, is linked with the idea of some species of sexual delinquency

As widespread as this conception has become, nothing could be further from the truth In point of fact, the proposition it maintains is precisely the contrary of that posited by psychanalysis In his "Drei Abhandlungen zur Sexualtheorie," Freud[1] clearly defines the neurosis as the negation of abnormal sexuality He distinctly says that the neurotic and the sexual delinquent stand at exactly opposite poles to one another It cannot be too strongly emphasized, therefore, that the manner in which the patient's sexuality is related, according to Freud's interpretation, to the etiology of neurotic disorders is one which, far from incriminating him, wholly absolves him from the stigma of abnormal sexuality

Still another very prevalent misapprehension is the view that psychanalysis is synonymous with the obtaining of a general confession from the patient

Far be it from me to deny the time-honored psychotherapeutic axiom that an honest confession is good for the soul No one, I think, realizes better than the psychopathologist the undoubtedly remedial effect which follows on the unbosoming of some secret conflict in the mental life But the whole point in the psychanalytic interpretation of the neuroses is that these disorders arise precisely from conditions which render voluntary confession impossible, it being the nature of the disturbing element that it remains of necessity wholly unknown to the patient himself

The typical clinical picture confronting the psychanalyst is that of an individual who, on examination, either reveals no evidence of disease whatever, or else presents a condition which cannot be accounted for by any demonstrable physical lesion Indeed, it is not infrequent that in the opinion of the ablest clinical experts he is pronounced absolutely free from organic disorder Often the patient himself declares that he feels in excellent physical condition, that he eats wholesomely, sleeps soundly, and realizes that he has everything that ought to make a man well and happy, and yet whose every moment is one of unmitigated wretchedness He is perhaps a prey to phobias, obsessions, apprehensions, depressions, sudden and unremitting imperatives, the appalling loss of the sense of reality, to mention the most characteristic symptoms of neurotic states, or he may suffer from digestional disturbance, respiratory inhibition (stammering), muscular contractions, etc, and yet is utterly perplexed to account for the plight in which he finds himself, and completely powerless to furnish any data that might throw light on these abnormal manifestations

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* Read before the Huxley Society of the Johns Hopkins University

[1] Freud, Sigmund Drei Abhandlungen zur Sexualtheorie Vienna, Deuticke, 1910

In other words, we are in the presence of factors which operate *unconsciously* That is, we have to do with organic effects and reactions which fail to attain the level of conscious perception and which are therefore from the conscious standpoint equally impalpable to patient and physician Let us bear in mind, then, that *the sphere of psychanalysis lies exclusively in the field of unconscious mentation*

With these distinctions before us, I shall try to explain briefly the basic principles of psychanalysis, and to show something of what the method seeks to attain

In many fundamental respects, Freud's teaching, as has been said, marks a wide departure from the hitherto prevailing view as to the interpretation of neurotic states [2]

In the first place, Freud ascribes all neurotic disorders to the existence in the patient of wishes which are unrecognized, that is, not directly envisaged by him Wishes of this unpremeditated character he subsumes under the term "unconscious," and gives to the realm of psychic activity constituting, as it were, the abode of such unconscious trends, the name of "the unconscious" *(das Unbewusstsein)*

Secondly, he regards the neurosis as a spontaneous expression of the tendency toward the fulfilment of such unconscious wishes Thus he ascribes to the neuroses a purposive significance — a moral import The neurosis contains a motive It embodies an underlying intention tends to supply a void not clearly cognized and defined, because existing outside the precincts of consciousness

Thirdly, the ideas or wishes which thus occupy the sphere of unconsciousness possess the generic character of being invariably such as are ethically inadmissible in the sight of consciousness, so that the psychologic account of the creation of this limbo of the unconscious is to be found in the psychic conflict arising out of the opposition of consciousness to these ethically unwelcome desires and their consequent enforced banishment from consciousness — a process which Freud calls the mechanism of repression *(Verdrangung)* [3] Hence, in accordance with the hypothesis, a psychic conflict, with the attendant repression of the unseemly element, is the basic factor in the production of the neuroses

Fourthly, it is Freud's thesis that all such conflicts as issue in such unconscious repression have their ultimate basis in the sphere of the sexual instinct In other words, psychanalysis posits a sexual *repression* as the essential condition in the etiology of a neurosis [4]

And lastly, the theory assumes that such symptoms as are the expression of a tendency toward the fulfilment of these forbidden trends are but an indirect, cunningly veiled representation of them, that they are substitutions employed by reason of their associative affiliation with the original underlying idea Each symptom is the dramatic portrayal of the repressed wish subjected to a process of modification through the effort of consciousness to evade its real significance The symptoms thus expressive of a neurosis are in each instance the resultant of contrary and opposed psychic trends, and represent in their outcome a compromise between the two

Such remodeled, distorted expressions of the brute, primitive instincts as appear in the symptoms of neurotic disorders, Freud has called the phenomena of unconscious symbolization This unconscious symbolization of instinctive trends whereby is effected the necessary palliation required by the censor of consciousness is the crux of Freud's interpretation of the neuroses

According to Freud, the instinct of reproduction is paramount in the life of the individual Yet the sexual trend is not the simple, unitary, static phenomenon it is generally assumed to be, but, like other factors of evolution, is a dynamic process having its integrative components derived from simpler elements Freud points out that the sensations contributory to this impulse are originally composed of dispersed and inarticulate components, having their seats in various erogenic zones located over the body surface and situated chiefly in the regions composing the body orifices The sensations arising from such erogenic zones are present, he tells us, in earliest infancy, and it is of these scattered, incoherent elements that the characteristic sexual feelings pertaining specifically to the organs of reproduction are later constituted The ultimate attainment of the instinct directly conducive to reproduction consists, then, of a process of integration representing the product of individual evolution Accordingly, there are three possible courses in the development of the ultimate sexual life of the individual

First, the sexual life may take a normal course leading to the gradual absorption, so to speak, of these scattered auto-erotic trends into the resultant allo erotic instinct comprised in the ultimate reproductive quest, and having its physiologic center in the organs of generation In such case we have the integration which results in the individual of a normal sexual life

Secondly, there may be a persistence of the original auto-erotic interests and of the sexual satisfaction attaching to these primary erogenic zones, with failure of the aforesaid integration into the sexual impulse which tends toward the goal of reproduction In this case there are presented the variations of the normal sexual impulse which constitute the *perversions*

Finally, the sexual interest or *libido* pertaining to the different erogenic zones through repression may be deflected into vicarious avenues of sexuality corresponding symbolically to such frustrated interests. Such an outcome epitomizes the mechanism of the neuroses as envisaged by Freud. Of course no rigid line of demarcation separates these three possible developmental issues, but there is among them more or less of interlacement of the characters distinctive of each.

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[2] Forchheimer Frederick Therapeusis of Internal Diseases New York D Appleton & Co 1913 **4**, 569

[3] Brewer and Freud Studien uber Hysterie, Vienna Deuticke, 1910

[4] It should be explained however that the word 'sexual' as Freud uses it, has a far more general and inclusive meaning than is conveyed by the term as commonly employed Contrary to the specific connotation of conventional usage, the term denotes, with Freud the entire sphere of the primary, biologic pleasure affects

The neuroses, then, represent in a negative way a miscarriage of the sexual instinct analogous to that represented in a positive way in the sexual perversions. Freud's thesis, therefore, is that the neuroses betray an inadequacy in the development of the psychosexual life. This inadequacy marks a regression toward a sexual mode appropriate to an earlier, infantile period and postulates a latent, unconscious fixation of the *libido* on its original, infantile object. Hence the sexuality of the neurotic is hindered, repressed and, as it were, preoccupied elsewhere than with the immediate and contemporary object of sexual interest, and the psychologic situation presented by the patient is summed up by Freud in what he terms the patient's "sexual resistances" (*die sexuelle Widerstande*).

Such is the fundamental idea of psychanalysis in regard to the origin and development of the neuroses. The primary factor in the production of the disorders is the repression of the individual's sexuality due to the ban set on the manifestations of this elemental instinct by the strictures of social and religious conventions. It is the conflict between the forces of artificial culture and those of an inherent instinct of sex, the former imposing the repudiation of sexuality, the latter insisting as resolutely on a due recognition of the basal significance of this elemental factor in the biologic economy. The sexual instinct stoutly insists that it be granted recognition in consciousness, and consciousness, in its narrow intolerance, is as fiercely resolved to debar so unseemly an intruder. The final upshot of the situation is a compromise. It is agreed that the unruly element be admitted to consciousness on condition that it soften its tone and, as it were, adopt conventional apparel conformable to the requirements of adult, social consciousness. It is to this end that the psychic organism assumes the social defense it finds in the elaborate metaphorical usages presented in the patient's "symptoms." For it is only through dissembling that the repressed complex can succeed in evading the anathema of the conscious censor. But, though disguised in consciousness, this discordant, outlawed element still lurks in the unconscious, where, acting surreptitiously, it incites dissension amid the constituents of the personality, impairing its unity and destroying the mental synthesis requisite to the purposes of concerted function.

It is Freud's thesis, then, that the neurosis entails a psychic conflict due to an attempt to exclude from a fit acknowledgment, in consciousness, the biologic factors whose prerogatives are fundamental and inalienable. As has been said, such an exclusion of normal interests from participation in current consciousness Freud calls a *repression*. A psychic repression being the essential mechanism of a neurosis, the question for psychotherapeutics is, How may disorders arising from a psychic conflict, issuing out of the arbitrary and extraneous repression from consciousness of such contraband associations, be remedied? Freud, seeking to give the direct logical answer, contends that disorders embodying psychic conflicts due to repression of elements which have a right to tenancy in consciousness are to be effectually cured only by removing the repression and freely admitting such contingents to their hereditary rights in consciousness.

So much by way of outline of the principles contained in Freud's system of psychotherapy. Now as to the method.

METHOD OF PSYCHANALYSIS

It will be clear from the foregoing that the task of the psychanalyst is to bring into the high light of consciousness the ideas or associations which have been relegated to the recesses of the unconscious. The sole clue, however, to such repressed fancies lies in the symbolic equivalents into which these unconscious ideas have been converted through the process of repression. And the source of such surrogate symbolizations is to be sought in the symptoms themselves, in every spontaneous, unguarded reaction of the patient, and, most critically of all, in the patient's dreams. For it is in the drama of dream imagery, which the mind enacts during sleep, when the sentinels standing guard at the outposts of consciousness grow lax in their vigil, that these harpies of the unconscious most easily escape durance and venture to disport themselves with least danger of surprise.

Here, then, is our opportunity to take the demon of the unconscious unawares. Not that this unconscious ogre, be it remembered, is wont, even in dreams, openly to expose itself, but there are revealed in the creations of dream phantasy traces of its presence whereby it may be tracked to its hiding. This tracing of the repressed interests contained in the ideas lying behind the dream images constitutes the method of dream analysis, as developed by Freud, and it is the analysis of the patient's dreams which is by far the most important resource of the psychanalyst.

In Freud's conception, the actual dream, as revealed to consciousness, that is, the *manifest content* of the dream, is but an enigmatic congeries of psychic images — a charade that condenses in scenic productions a whole mass of related, interconnected meanings or dream thoughts, and it is the latter which constitute the real or *latent content* of the dream. Dream analysis or dream interpretation consists precisely in reaching these concealed fancies and so correlating them in accordance with precepts empirically determined as to render them coherent and significant. To do this it is required that the patient retrace the mental threads out of which he has woven together the elements of his dream tapestry. Such threads are composed of links in interconnected chains of associations, and it is the task of psychanalysis to follow these threads of associations to their source, in order to reach the material out of which the dream images were originally spun.

Such a proceeding is fraught with difficulties, for obviously as the dream creation is precisely the outcome of the effort of consciousness to disguise, and so evade, the real meaning underlying the manifest dream elements, analysis involves a task no less formidable than that of pitting the patient against his own inherent will. It really means setting the patient at cross purposes with himself by forcing him to face frankly the thoughts and wishes which he has perhaps for a lifetime sought to repudiate, that is to say, the ideas which have been ruthlessly debarred entrance into consciousness and which in consequence pursue their career beyond the pale of apperception, manifesting themselves subtly in the symptoms and obsessions characteristic of neurotic states These ideas are one by one readmitted into consciousness and are through this procedure deprived *de facto* of the essential motive of their existence

As the analysis constitutes per se the entire system of psychotherapy introduced by Freud, an adequate account of the psychanalytic method would entail a full description of its technic The technic of psychanalysis, however, is too varied to be susceptible of definite formulation Indeed, the technic of psychanalysis is too intimately bound up with the delicate psychologic *rapport* existing between physician and patient to be separable from it, for each detail of the patient's behavior conveys its own nuance of meaning that is of the utmost import to the psychanalyst

The practical procedure which is followed in the analysis of dreams, however, may be broadly indicated The patient, having repeated his dreams, is asked to relate quite freely whatever occurs to his mind in connection with the different elements of which the dream is composed This method Freud calls that of "free-association" From the ultimate ideas at which the patient arrives at the end of each of the chains of associations leading from the several elements of the *manifest dream content,* the physician is enabled to reconstruct the underlying trend contained in the latent content of the dream and so discover the patient's dream thoughts

The links in the chains of associations do not succeed each other at regular temporal intervals, but frequently the patient halts, showing signs of discomfort and unwillingness to continue It is apparent that in such instances the patient's flow of thought is blocked by resistances, that is, he has come on a trend which he has long put away from him as distasteful, as unfit to hold a share in his contemporary consciousness At such crises, the patient must be encouraged to continue without fear or reserve He is reminded that the self-criticism which interposes itself in the current of his spontaneous associations tends to thwart the course of the analysis and to frustrate the whole purpose of the procedure So when he resumes again the thread of associations, concentrating his attention anew on the reminiscences occurring at the point of interruption, it is usual that he will be brought to reveal some incident or trend of marked significance in his affective life In other words, one comes in such intervals on psychic material which has been submitted to the process of repression and which, with its clusters of associations, constitutes a deterring "complex" in the patient's psychic life

In fairness it must be said that the psychanalytic method of procedure is far simpler to set down in writing than to carry out in actual practice From the very nature of the neurosis, with its repression or rendering unconscious of the most vital trends in the psychic life of the individual, there are, of course, enormous habitual resistances to be overcome To lead the patient to break through this habitual reserve is a task requiring the utmost expenditure of time, patience and ingenuity on the part of the physician, so that not infrequently hours are consumed in arriving at the determination of an objective statement which it would require but a few minutes to set down in writing

Of course the central interest in dream analysis lies in Freud's dynamic theory of dreams Freud teaches that the basic factor in every dream is an unconscious wish fulfilment that whatever the manifest content may be, however foreign apparently to the idea of a coveted purpose, every dream will, on adequate analysis, reveal the presence of a repressed wish How totally dissimilar in their content are the repressed wishes of the unconscious from what we commonly accept as the interests of our conative life, how utterly abhorrent to our ethical sensibilities such latent "wishes" invariably are, what, in short, is the real nature of an unconscious wish, in the sense of Freud, may be gathered only from a thorough study of Freud's dynamic psychology of the unconscious as contained in his major work "Die Traumdeutung"[5] It is here alone that one is enabled to comprehend the very original and revolutionary conceptions on which Freud bases his theory of the unconscious and in which he elaborates the principles underlying his searching study of the biology of mind

Next in importance to dream analysis is the association experiment which Jung of Zurich has adapted to practical psychanalytic application[6] The association experiment is useful chiefly as an instrument of diagnosis and for the purpose of a long-continued study of some specific problem, as the differences of reaction types But it is also most valuable to the student in beginning psychanalysis as a means of obtaining a preliminary survey of the general reaction of the patient and of opening the way toward gaining insight into his unconscious mental processes

The association experiment has three chief advantages First, it affords a *direct* avenue to the patient's repressed interests, second, it offers access to such repressed spheres of affectivity in spite of the patient's own unyielding resistances and, third, it affords us a means of investigation which includes in it the conditions of an objective control so essential to an exact experimental study of the data required in comparative psychologic tests

In arrangement and actuation the association experiment is very simple The idea of the test is this Every word represents for each person a psychologic situation This may have, according to individual circumstances, an accent of greater or less emotional value To say that a word possesses an emotional value is the equivalent of saying that it makes a deep impression on the psychic organism, that is, that it stirs a strong wave of response in the consciousness into which it falls

Manifestly, if the length of such emotional wave may be estimated, we have obtained a measure of the relative strength of the emotional tone represented by it This is precisely the result which is effected by the conditions of the association experiment

A series of words called test words, usually 100, are repeated to the patient, who is required to respond at once with the first word associating itself in his mind with the test word given By measuring with a stop watch, recording fifths of a second, the interval occurring between the stimulus (the calling of test word) and the reaction (the patient's response), a mathematical estimate is given of the relative emotional value of the situation recalled by the test word in question, for the more profoundly the consciousness of the patient is stirred, the longer will be the interval required in order to return to the mechanical routine of response required by the concrete conditions of the experiment

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[5] Freud *Die Traumdeutung Vienna,* Deuticke, 1910 translation by A A Brill

[6] Jung C J Diagnostische Associationsstudien

Hence, having obtained the length of the patient's probable average of reaction time, any marked excess of this interval indicates the presence of a significant reminiscence, that is, of an underlying complex A marked variation in the length of reaction time is, then, the most important of the complex indicators

A further aid in unearthing the hidden complexes is that of obtaining the patient's "reproductions," that is, having obtained his responses to the series of stimulus words, to test his memory of each of his responses by again repeating the test words In this procedure a wrong reproduction or failure to recall at all the original reaction word is indicative of a complex having been stirred Here again the excess of the affect carries the mind of the patient from the immediate verbal image to some intimately associated impression, and the significance of the reaction word as such is lost in the greater emphasis of the remembrance awakened by it

Still a further complex indicator consists in the successive decrease of the heightened interval of reaction time effecting the three or four immediately subsequent reactions To this species of complex indicator Jung has given the name "perseveration "

The frequent recurrence of the same reaction word throughout the experiment, the assimilation of the test word in an unusual sense, repeating the stimulus word before reacting, replying with more than a single word, offering explanations, etc , are among the many additional indications that a complex has been excited

Such are the chief means affording a clue to the lines along which the analysis may most judiciously direct its inquiry and so contribute to effect the release and thorough ventilation of the repressed affects which are responsible for the inner psychic disharmony

It is thus that the physician succeeds in establishing a synthesis amid the discordant, mutually exclusive elements of the personality It is thus that the psychic tension due to the mental conflict is eliminated and the dissociated elements of the ego are brought together in a simple unitary stream of consciousness

Such is the treatment of psychic disorders by the method of psychanalysis The statement given here affords but the merest hint of the full import of the method This is long and laborious, often entailing in actual practice many months for the adequate analysis of a single case To gain anything like a commensurate idea of the full significance of the psychanalytic method, one must put himself in touch with Freud's conceptions of the unconscious as presented in his writings In his various contributions to the literature of psychopathology, Freud has presented an account of the system of psychology on which he bases his explanation of the essential processes underlying neurotic disorders and in which he defines the rationale of the psychanalytic method of treatment

USES OF PSYCHANALYSIS

While, in my opinion, the discoveries made by Freud through his long and laborious investigations are as sound scientifically and as important economically as any in the history of modern medicine, I do not by any means regard psychanalysis as a universal panacea for nervous disorders, but on the contrary consider it as the particular method of psychotherapy that is most restricted in its possibilities of application,[7] a reflection, however, which is rather comforting than otherwise when we consider the length of time required — frequently, as I have said, as much as an hour daily for weeks and even months — for the adequate analysis of a single case This being true, it seems a fortunate circumstance that psychanalysis is not the suitable method in all cases — that other and simpler methods of psychotherapy are applicable in many types and degrees of nervous manifestations, and even if sometimes unscientific, they are at least effective for the ignorant masses to whom they are applicable

The fact is that psychanalysis is practically adapted to only a few persons, but those few belong, generally speaking, to the most educated classes and are precisely those personalities who, from the nature of the conditions of the onset of a neurosis, are the most sensitive, highly developed and worth while among us, and whose reeducation through self-analysis will be most far-reaching in its influence on the body social

Psychanalysis can never hope to become popular for the reason that it is honest It does not flatter or cajole the patient or seek to appease him with subtle blandishments, on the contrary, it mercilessly thwarts and assails him The mawkish and artificial will find in it little unction for their boredom Psychanalysis offers nothing brilliant or spectacular, but, being a robust, uncompromising method of scientific investigation, it proceeds in the laborious, unobtrusive manner of all earnest research, and is adapted to the needs of only earnest and intelligent men and women

Though lacking in frills, the method is not without its practical compensations One need not be irresistible to be a psychanalyst In psychanalysis "personality" is no asset The method places no premium on the personal charms of the physician

The misconception concerning psychanalysis which seems to me of all the most unfortunate is the view that there exists an inherent opposition between the principles of psychanalysis and those of experimental psychology On the contrary, the psychanalyst of far perspectives can hardly fail to recognize the possibilities of mutual gain in the complementary positions which these two departments of research occupy in relation to one another, nor can he fail to see the opportunity he has in the objective controls of the experimental method for the substantiation of his results Nothing, it seems to me, can more certainly cripple the researches of the psychanalyst than this very fundamental misapprehension

I believe William James once said that when any discovery is newly given to science the cry at first is that it is not true, but that later, as the truth of the new theory becomes manifest, this attitude is replaced by the admission, "Yes, it is true, but *I* discovered it " Now that psychanalysis is entering this latter phase of its career, there begin to appear various bogus psychanalytic procedures which are in truth mere travesties on the original method of Freud, and we need be on our guard against the cunning decoys of such spurious artifices

We shall do well, therefore, to discriminate between psychanalysis as represented in the systematic, laborious, time consuming method of psychotherapeutic research introduced by Sigmund Freud — a method imbued throughout with the spirit and ideals of the laboratory — and the pseudopsychanalytic substitutes which pervert Freud's method to sensational uses Psychanalysis proper is wholly incompatible with the business of medicine The hurrying practitioners who say that they use psychanalysis as occasion arises, as though they kept it on a shelf in bottles, simply fail to understand the first principles of the method, for psychanalysis is not a tablet but a system It is not to be summoned by caprice or expedience but must be acquired by careful study and training, and above all by the exacting discipline of a thoroughgoing self-analysis

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[7] Freud has himself been most explicit in the practical limitations he has recognized in the use of the psychanalytic method

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GROUP STUDY

A REPORT OF ONE HUNDRED AND FIFTY CASES *

WILLIAM WALLACE BEHLOW, A B, M D
SAN FRANCISCO

In a recent article on group study,[1] Birtch has described the methods in use in the Diagnostic Section of St Luke's Hospital Clinical Club, of San Francisco He has shown the advantage of correlated study in the investigation of patients, and has explained the details of the diagnostic team work Since the publication of that article, numerous inquiries have been received which indicate that this method of clinical study is not clearly understood In order that the profession may understand the character of this work, a brief review of the important features will be presented here

The most important phase of the work is the thoroughness of the examination Each patient is examined by each member of the diagnostic section The purpose of such an examination cannot be clearly appreciated by every one, inasmuch as questions such as the following have been received within the last month One prominent clinician asked, "Don't I do as much for my patients when I call various specialists in consultation?" In answer to that query, it may be stated that in ordinary practice only those consultants are called who, in the opinion of the patient's physician, are necessary to clear some point in diagnosis or treatment It is conceivable that an extraordinarily keen physician may be able to discover every lesion in a patient with or without the aid of other individuals On the other hand, a patient may have early signs of disorder in a certain part of the body, without presenting symptoms of sufficient importance to draw his physician's attention to that region It is not likely, therefore, that a specialist of diseases of that region would be called in consultation From a prognostic point of view, the recognition of such a disorder may be of the greatest importance to the patient

Therefore, in order to eliminate such errors, the members of the diagnostic section decided that each patient should be examined by all the clinicians of the group By this method, an early retinitis, or a beginning ostearthritis of the spine would be recognized by the oculist, or orthopedist, respectively, even though subjectively the eyes and spine were negative Through this plan of investigation, the responsibility of seeking advice does not rest on one individual, for each patient receives the examination of a specialist in the latter's particular domain

To perform this series of examinations, the patient is in the hospital for an average of 100 hours, and during this period is under the direct control of the resident physician of the diagnostic section This enables the section to perform all the necessary tests which are so much a part of medical diagnosis at the present time A daily consultation of all the clinicians is held, and the case is thoroughly discussed from every angle

Finally, after definite conclusions have been reached, a written report of the history, of the clinical and laboratory findings, of the final diagnoses, and of suggestion as to future therapy is sent to the patient's physician, who again assumes full charge of the case

This method of group study has been in existence for almost a year When the work was begun, the diagnostic section had no idea of the many obstacles which had to be overcome, or of the many pleasant surprises which were in store for the members of the section It is my endeavor to present a few interesting facts concerning the first 150 cases which have been investigated by this method

A brief consideration of the histories of these patients is of more than passing interest In an unpublished article, Read has clearly shown that from a careful history one can make a positive diagnosis of the primary or major condition in 53 per cent of the cases The same care in taking a history will make possible a positive diagnosis of the secondary conditions in 41 per cent of cases It is therefore obvious that an accurate record of the patient's past and present history is of the utmost value for the proper consideration of data elicited on examination

In order that there may be no omissions in the record of the past, a printed form for the history was prepared and a definite statement required after each question No such routine could be employed in recording the present illness Therefore a detailed record of the present illness has not been obtained through any set questionnaire Omissions by the historian have been corrected by secondary questioning on the part of the clinicians who examine the patient Through this method few details have escaped the notice of the examining group

A decided advantage to be derived from such a method of recording histories is the ease with which one may determine the frequency of any symptom, or group of symptoms, in some special disease As an example, one may desire to know how frequently night sweats have been present in the past history of patients in whom the diagnosis of tuberculosis has been made Inasmuch as each record contains a statement concerning this fact, one may readily find the answer to such a question A tabular review of the prevalence of each symptom is periodically made, in an endeavor to confirm or correct clinical impressions which have been gained from the literature The results of this investigation will appear at a later date

Turning now to the diagnosis of the case, it has been taught in the past to make as many of the signs and symptoms agree with one clinical picture as it is possible to do While this is still the aim of clinicians, there has been a tendency to overlook pathologic conditions of apparently little consequence, which, a few months or years later, may be of greatest importance to the welfare of the patient How often this is true of patients who have been subjected to surgical procedure is only too well known to physicians

In this series of cases, the major diagnosis has not always followed the prominent symptoms of which the patient complained, but has frequently been more inti-

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* Read before St Luke s Hospital Clinical Club

* From the Diagnostic Section of St Luke s Hospital Clinical Club

[1] Birtch F W A Group Study ' Plan for a Diagnostic Team Acting as a Laboratory for the Profession The Journal A M A May 27 1916 p 1672

mately related to the prognosis Such an instance may be cited in the case of a patient who came to the hospital for surgical treatment of a gastric ulcer Before the operation had been definitely decided on, the patient was examined by the diagnostic section Conclusive evidence of peptic ulcer was found, but also definite signs of active pulmonary infection of probable tuberculous origin were obtained In view of these facts, operation was not recommended, and the final diagnosis placed pulmonary tuberculosis first, and ulcer of the stomach second One might go into greater detail in discussing this most interesting phase of the work

From a tabular study of these 150 cases, it is interesting to note that of the forty-eight surgical cases, only seventeen patients were operated on immediately after the diagnosis was made Of the remainder, three were recommended for operation without further treatment, and for five it was suggested that medical therapy be instituted before operation was performed This is in marked contrast to the usual procedure in the average surgical case

STATEMENT IN REGARD TO FOLLOW UP LETTERS IN THE *FIRST ONE HUNDRED AND FIFTY CASES*

	No of Cases
Diagnoses proved (80) partially proved (2)	82
Not proved	39
No report as to condition of patient	28
Not heard from	1
	150
Methods by Which Diagnoses were Proved	
Operation	14
Necropsy	5
Laboratory	8
Therapeutic test	11
Clinical course	16
Method not stated	28
	82
Condition of All Cases Reported	
Improved	82
Not improved	26
Cured	14
Dead	17
No report as to condition of patient	10
Cases not heard from	1
	150
Results of Recommendations Regarding Therapy	
Carried out	99
Partially carried out	18
Not carried out	17
No report	15
Cases not heard from	1
	150
Impression of Physician Concerning Report Submitted to Him	
Satisfactory	141
Unsatisfactory	6
No report	2
Cases not heard from	1
	150

Furthermore, it is of interest to note that the patient's own words, as given in the complaint, conveyed a definite idea concerning the ultimate diagnosis in approximately 60 per cent of the cases as far as the primary diagnoses were concerned

This is of course noteworthy, showing, as it does, the importance of laying considerable emphasis on the actual complaint of the patient In this day of ultrascientific medicine, we are too prone to forget that the patient has come to us for a definite complaint In view of the experience in these few cases, it would certainly behoove all of us to pay more attention to the real troubles of the patient, rather than wander off into the by-ways of medicine in an endeavor to establish some extraordinary diagnosis

Naturally, one hesitates to draw any conclusions from such a small number of cases My associates are convinced that group study is a most interesting and instructive method of practicing medicine, in that it gives the patient what he asks for, it aids the average practitioner, and it creates a desire on the part of the members of the group to enhance their medical knowledge

The best criterion of the success of this method must necesarily be the reports of the practitioners who have sent their patients to the diagnostic section for information concerning the morbid processes of the patients themselves In accordance with recognized principles regarding hospital statistics, the diagnostic section has sent out the so-called follow-up letters, in an endeavor to determine just how well or how poorly the section was doing The accompanying report presents the answers to the letters concerning the cases presented above

A superficial analysis of the report would give the skeptic plenty of opportunity to criticize the principle of this method of investigation When, however, it is realized that thus far only cases which have been obscure in the minds of the patients' physicians have been referred for diagnosis, it is surprising that the results have been as good as they are Two features of the report are worthy of note, without further comment first, 141 cases were satisfactorily investigated, second, in only ninety-nine cases were the recommendations regarding treatment carried out Early in this work, and even now, there are many who are decidedly skeptical Unfortunately, they expect that a correct diagnosis must necessarily result in a favorable prognosis It must furthermore be remembered that many of the cases reported were decidedly unfavorable, prognostically, from the very beginning, inasmuch as the patients came to the diagnostic section as a last resort

Considering these facts, it may be stated that while the members of the diagnostic team are far from pleased with the reports received from the physicians who referred cases, yet with due regard to the circumcumstances attending the patients I feel that the percentage of favorable results certainly proves the value of such a method of clinical investigation

CONCLUSIONS

1 Ten or twelve physicians, each interested in a certain field of human ills, working together, will discover ailments which one physician of more than average ability will not be able to discern

2 The discovery of symptomless disorders may be of the greatest importance to the patient in after years

3 A thorough history will make the ultimate conclusion a matter of considerable less difficulty than if that thoroughness was neglected

4 The keeping of records is an important feature of medical practice, inasmuch as many hard and fast ideas derived from incomplete observations and transmitted from one book to another may be found to be incorrect

5 The average patient will certainly benefit by the group method of consultation

6 The average physician in the majority of cases has thus far placed on this method of investigation his stamp of approval, and it is believed that when the idea of group study of patients is better understood, the majority of physicians will give their hearty approval not only to the principle on which it is founded, but also to the method itself

233 Post Street

THE TREATMENT OF GONORRHEAL INFECTIONS

BY THE INTRAVENOUS INJECTION OF KILLED GONOCOCCI, MENINGOCOCCI AND COLON BACILLI *

HARRY CULVER, M D
CHICAGO

After the intravenous administration of a highly polyvalent gonococcal vaccine, Bruck and Sommer,[1] in 1912-1913, observed striking therapeutic results in gonorrheal complications, especially arthritis, epididymitis and acute prostatitis These results, within certain limits, ran parallel to the severity of the reaction following each injection A specific temperature increase was noted which was higher in gonorrheal than in nongonorrheal patients, hence this method was suggested as a diagnostic as well as a therapeutic agent At this time the entire process was attributed to the production of a specific immune substance, caused by the intravenous injection of the gonococcal vaccine

It has been clearly demonstrated that, in typhoid injections, a nonspecific reaction follows the intravenous injection of colon bacilli, pyocyaneus bacilli, and secondary proteose preparations These substances give results clinically and therapeutically quite like an injection of killed typhoid bacilli

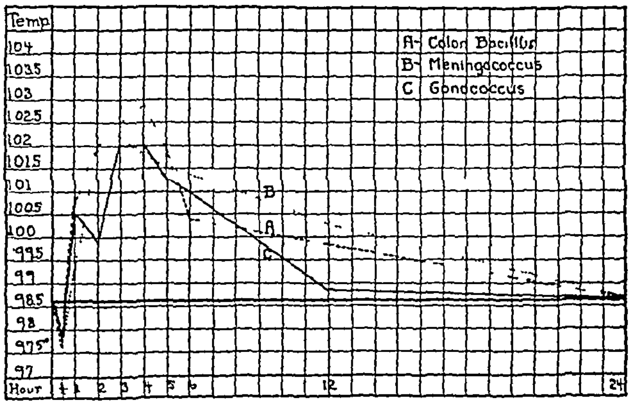

Chart 1—Composite temperature curves following intravenous injections fifty four gonococcal injections in fourteen patients twenty three meningococcus injections in twelve patients, and eight colon bacillus injections in seven patients are represented

In order to determine the degree of specificity, if any were present, following the intravenous injection of gonococcal vaccine, three series of patients suffering from gonorrhea and some complication, such as arthritis, epididymitis or acute prostatitis, were chosen in the order in which they had entered the hospital,[2] no attempt having been made to classify them as to severity or complication The first series was treated intravenously with a strongly reacting dose of gonococcal vaccine, the second series received a similar dose of meningococci, while the third series received a suitable dose of colon bacillus vaccine

The patients, when possible, were kept in bed throughout the treatment, special care being taken to keep them quiet for two days following each injection No local or internal treatment was given for the gonorrheal infection other than an elevation of the scrotum in all instances of acute epididymitis The temperatures were taken and the leukocyte and differential counts were made just before each injection and at regular hours thereafter for the first forty-eight hours

VACCINE TREATMENT

Gonococcus Vaccine—The first thirteen patients were given intravenously 100 million killed gonococci, and the same or slightly varied dose was repeated every fourth or fifth day until treatment was suspended The greatest number of injections given one person was six, most of them received five, while one received but one injection

The injection is followed by a chill of variable severity coming on in from twenty minutes to one hour and lasting from fifteen to thirty minutes This chill may or may not be accompanied by headache, which is usually of short duration and passes away shortly after the chill is over Exceptionally there are nausea and vomiting during the first few hours, but it is never severe and is always transient This occurs always in patients who have disobeyed instructions, by eating heartily within a few hours of the injection

At the onset and during the chill the patient often complains of severe pain in the affected parts Whether this is due to some internal cause or to the unavoidable motion produced by the chill it is impossible to say The pain, however, is variable in different patients and in the same patient at different times

It is usual for the severity of the reaction to decrease following repeated injections, and this decrease is directly proportional to the number of injections previously given In order to maintain a constant reaction with each succeeding injections of gonococcal vaccine gradually and cautiously increased

In two of these patients, both of whom had had numerous subcutaneous injections of gonococcal vaccine, there appeared immediately following each intravenous injection a very transient reaction characterized by flushing of the face, cyanosis, dyspnea, and a tingling sensation over the surface of the whole body These reactions lasted from one to two minutes, after which the patients felt perfectly at ease until the usual reaction appeared in from twenty minutes to one hour This anaphylactic-like reaction may have been due to a partial sensitization from the previous subcutaneous injections Three other patients in this series developed a mild type of a very similar condition on their third intravenous injection, but had none following the first two, or after the fourth and fifth injections

The typical temperature curve following these injections reveals a slight fall during the first part of the chill, followed by a gradual rise, which reaches its maximum in from one to four hours and gradually falls to normal in twenty-four hours The average maximum temperature for the thirteen patients was 103 9 F, the highest temperature being 104 6 and the lowest a maximum temperature of only 102 8

The leukocyte counts during a reaction and following it are somewhat variable Usually there is a mild leukocytosis just before and during the first part of the chill, soon followed by a marked leukopenia, which appears toward the end of the chill A count as low as 2,000 has been observed repeatedly during this stage of the reaction This condition is soon followed by a gradually developing leukocytosis which reaches its maximum in from five to seven hours, and remains moderately high for from twenty-four to thirty hours A return to normal occurs in about forty-eight hours

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* From the Department of Experimental Medicine University of Illinois College of Medicine

[1] Bruck and Sommer Munchen med Wchnschr, 1913 **60**, 1185

[2] All patients here reported were from the services of *Drs Harris* Simpson McEwen and Stillians of the Cook County Hospital, to whom I wish to express *my thanks for the privileges granted*

The average of the highest counts made in the first thirteen patients was 33,300, the highest individual count being 55,000 The lowest count of one patient was only 22,000 This marked and sudden change in the leukocyte count is due almost entirely to an increase or decrease of the polymorphonuclear leukocytes in the peripheral circulation, their percentage being as low as 50 during the leukopenia stage and as high as 96 during the height of leukocytosis

Meningococcus Vaccine—The second series of fifteen patients was treated with killed meningococci in the same dose and at similar intervals as in the gonococcus series

The reactions as far as could be determined were similar in every detail to those produced by the gonococcus vaccine One instance of a double reaction occurred following the first injection, and one patient developed this condition after two injections None of this series had had previous subcutaneous or intravenous injections The average maximum temperature for this series was 103 5 F, the highest single temperature being 105 2, while the lowest reached only 102 The temperature curves were uniformly like those following injections of gonococci

The leukocyte curve in general likewise followed those of the first series very closely the average maximum count being 27,800, the highest single count was 46,400, while the lowest had a high count of 20,000 The type of cell varied as in the first series One very striking difference was observed between the two series Over one half of the meningococcus series developed a more or less severe herpes of the lips and mucous membrane of the mouth, first appearing in forty-eight hours and remaining for from four to seven days This condition did not occur following any but the first injection, and did not become aggravated or recur when further injections were made in a susceptible individual No such reactions followed the gonococcus injections

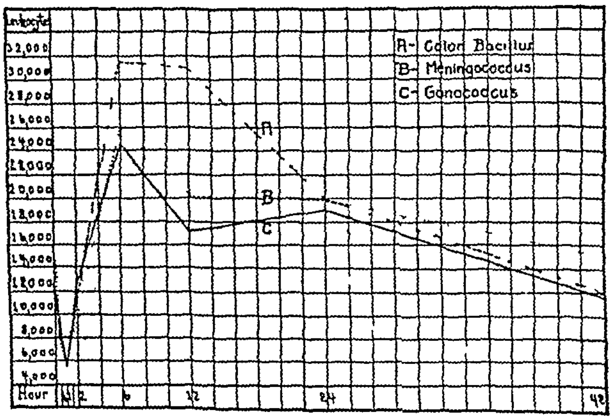

Chart 2—Composite leukocyte curves following same intravenous injections as represented in Chart 1

Colon Bacillus Vaccine—This series contained but seven patients The reactions were in every way like those produced by meningococcus and gonococcus, with the exception that the size of the dose required to produce the same results was very much less At first a dose of 100 million organisms was given, but the reactions were so severe that 25 millions were finally used as the initial dose, this to be increased if necessary to produce the desired results

The average maximum temperature was 104 F, while the average highest leukocyte count was 35,500

There can be no question that the homologous curves representing the reactions produced following the injections of each organism are very similar, as seen in the accompanying charts, however, the curves representing the colon bacillus seem to reach a higher point in both instances, this is due to the smaller number of injections represented in the curve The crest of a curve of this kind is obviously not so high as one representing a single typical reaction, since the time of the maximum temperature and leukocytosis may vary somewhat for different individuals, or for the same individual following repeated injections

As far as therapeutic results are concerned, there is no noticeable difference between the three bacterial suspensions, once the proper dosage is established To produce results therapeutically, a reaction is necessary That is, a chill must occur which is invariably followed by the temperature and leukocyte changes noted above A dose insufficient to produce a definite chill is not followed by so marked a temperature and leukocytic reaction, and clinically no therapeutic benefit is derived At times there may be some fever production and a moderate leukocytosis not preceded by a chill The reactions and therapeutic results appear very distinctly similar for the three organisms used when gonorrhea-infected patients are considered The reactions following injections in nongonorrheal patients are not to be distinguished from those produced in infected patients, nor is there any noticeable difference in the reactions produced here between the three organisms

These observations were made by injecting a series of patients having chronic skin lesions but no history or indication of gonococcal infection The size of the dose required to produce a reaction, the chill, temperature and leukocytosis were alike in every way in the infected and noninfected patients

Twenty-four patients suffering from arthritis associated with gonorrheal urethritis were treated Naturally most of these cases were acute or subacute, but some were of five months' duration and many were of over ten weeks' duration when the treatment was begun

As might be expected, the most striking results were obtained in the acute and subacute cases, the most refractory cases, however, were also in the acute class Those suffering for long periods appear to respond more slowly to the treatment, but fortunately seem to suffer from no recurrences or new joint involvements during the course of the treatment, as some of the more acute cases do All but two of the arthritic patients were completely cured or manifested a decided improvement The length of treatment varied from two days to one month

Unusual effects were seen in three patients with acute arthritis so severe that sedatives were necessary to give them rest for the first two days in the hospital After a single reacting dose in each instance they felt so well that they insisted on getting out of bed, and in three days they walked out of the hospital Two of the patients had effusions in the knee joint, which completely disappeared before their discharge from the hospital. Unfortunately none of these men have been heard from since, so the permanency of the striking results in these instances is not known. The fact that they have not returned to the hospital suggests at least that a recurrence as severe as the original attack is not probable. Equally striking was the following instance:

J. R., a man, aged 28, had been confined to his bed for four weeks with arthritis of almost every joint of both lower extremities. These lesions had come on during the third week of gonorrhea. After the third injection he was up and walking about, and after the sixth injection he was apparently completely cured. He went back to his work as a cook and has been at work for three months with not the slightest indication of recurrence. At present he says he is gaining in strength daily.

The two refractory cases mentioned were both acute and seemed not to respond at all or very slowly to this form of treatment. One would show considerable improvement for a day or two but invariably would lapse back to the original condition; the second patient recovered completely excepting one knee joint which contained a marked effusion, and seemed not to be affected by repeated injections.

Bruck noticed similar instances, which he explained by the absence of the homologous gonococcus strain from his polyvalent vaccine. It is very evident that this explanation will not suffice, but whether it is due to a special resisting power of the particular gonococcus responsible or to some peculiarity of the infected host, it is impossible to say. Such patients react with fever and leukocytosis, as do all others.

Twelve patients with acute epididymitis were treated, and invariably the pain would subside after the first injection. Usually not more than two injections were necessary, and, indeed, in most instances one, to effect a cure. The swelling begins to subside within twenty-four hours after the first injection. In no instance did the patient remain in the hospital over a week, except in one case in which an overdose was given which will be mentioned later. The patients usually left the hospital on the fifth or sixth day, or just after recovering from the reaction following the second injection.

One patient entered the hospital suffering from acute epididymitis and prostatitis and almost complete retention of urine. About four hours after an injection of meningococci, he passed urine with no apparent obstruction. After three injections he left the hospital apparently cured. No gonococci could be found in the urethra, prostate or vesicles. After he had been at work for five weeks without inconvenience, he went on an alcoholic and sexual dissipation lasting several days, at the end of which period he developed an acute epididymitis on the previous sound side. Even then gonococci could not be found in the urine or urethra.

That these injections are not prophylactic against the development of new complications is evidenced by the fact that one occasionally sees a patient, under treatment, develop an acute epididymitis or an involvement of a new joint. Again a patient may leave apparently completely cured of arthritis to return in a few weeks suffering from epididymitis.

The effect on the urethral discharge is decidedly variable. The discharge in some patients is more profuse for two or three days following the injection, and then rather suddenly subsides entirely; in others a marked decrease in the discharge following each injection occurs, while some of the very chronic discharges seem not to be influenced at all. Regardless of the amount and type of discharge, the gonococci are noticeably decreased in number, and in most instances apparently entirely disappear after from four to six injections.

An attempt was made to follow these patients after their discharge from the hospital. Three months have now elapsed since the first were discharged, and all have been away for at least six weeks. Other than the development of acute epididymitis in three after their discharge there have been no complications or recurrences of any kind. One of the three has been previously mentioned, the second after the cure of a left epididymitis developed epididymitis on the right side one week from the day he left the hospital, while the third developed epididymitis one month after having been discharged as cured of arthritis. All three patients returned to the hospital, without sign of recurrence of the former condition. Over two thirds of all these patients have been heard from directly; some are at work and appear to be gaining in strength daily. Others feel too weak as yet to carry on the heavy work which they have to perform, although they have no pain to prevent them from doing so.

On account of the fact that the reaction following these injections is followed by a chill and general reaction of more or less severity, a very complete physical examination is necessary beforehand. Such a reaction necessarily calls for the increased cardiac activity, so one should proceed with caution when a patient with a coexisting organic heart disease presents himself. The smallest reacting dose of meningococci was given in the following case:

J. W. was suffering from mitral regurgitation of long standing but perfectly compensated, together with acute epididymitis. He passed through the chill with no distress, but in three hours after the injection he became cyanotic, his pulse became irregular and feeble and he had marked precordial pain. This condition lasted from ten to fifteen minutes, and he had no further inconvenience.

No other cardiac irregularities were noted in the entire series. Arnold and Holzel[3] cite Lewinski's case of acute cardiac insufficiency developing after an intravenous injection of gonococci. Heart disease was not known to be present. On the other hand, Luithlen[4] reports a case of gonorrheal endocarditis successfully treated in this manner. There are many instances reported, however, of cardiac symptoms developing in the presence of organic heart disease following these injections, so one should exercise care and judgment in the selection of cases.

From the proper reacting dosage in this series there were noted no other symptoms attributable to the injections. Special attention was given the kidney function, particularly in three patients who had received large doses of colon bacilli. In no instance did albumin appear in the urine, nor did any indication of kidney involvement arise. One patient having a chronic diffuse nephritis with considerable albumin in the urine had two injections with no appreciable change in the kidney function.

Foekler,[5] however, reported epileptiform seizures after similar intravenous injections, and Fischer in one instance noted cerebral symptoms, which passed off in twenty-four hours

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[3] Arnold and Holzel: Munchen. med. Wchnschr., 1914, 61, 1967.

[4] Luithlen: Wien. klin. Wchnschr., 1915, 28, 533.

[5] Foekler: Med. Klin., 1914, 10, 47.

Delirium was noted in three patients of this series, all having received a large dose of colon bacilli This condition was of short duration and completely disappeared in twenty-four hours, leaving the patients in a weakened condition, from which they recovered slowly All of these patients had a diarrhea of moderate severity for two or three days One man became so weak that he was kept in bed for ten days, and left the hospital after two weeks As far as could be determined he had completely recovered, and he appeared physically and mentally normal in every respect

COMMENT

It is apparent that any therapeutic effect obtained by the intravenous injection of killed bacteria is not due to any specific reaction in the sense that antibody production is stimulated by specific substances contained in the organisms Jobling and Petersen[6] cite the work of Dunklin, who used proteose injections in typhoid immune rabbits and found a decided increase in the antibody titer, which is explained by a selective stimulation of the hematopoietic system by a nonspecific substance Walther, Hildebrand, Engelhardt, Rolly and Meltzer have reached the conclusion that high temperatures artificially produced have a favorable influence on any established infection, on the other hand, cold seems to retard the formation of immune bodies

The optimum temperature for the growth of the gonococcus in vitro is from 97 to 98 F Any appreciable increase in temperature has a deleterious effect on the life and growth of the organism A sudden rise to 102 F, or over, means certain death of the culture Boerner and Santos,[7] using a diathermic apparatus, found that when subjected to a temperature of 102 2 F for ten hours, the gonococci in the urethra are killed, while an exposure of six hours at 104 F, three hours at 105 8, and one hour, fifty-seven minutes at 107 is necessary to obtain the same results

This principle has been used in various ways in the treatment of local gonorrhea, with considerable success

When acute epididymitis develops and is recovered from, does the fever produced thereby have anything to do with the spontaneous cure of gonorrhea? Many patients with infections terminating thus have had considerable fever during the onset of the complication On the other hand, patients are seen with infections terminating in a similar manner and having had a normal temperature throughout, this, however, does not seem to be a common occurrence

Experimental urethritis in man by the application of a pure culture of gonococcus to the urethral meatus is known to be very constantly produced, but Finger, Ghon, and Schlagenhaufer[8] regularly failed when the experimental patient had a temperature of from 102 2 to 104 F due to some existing disease

A patient recently entered the hospital with acute urethritis of three days' duration A positive gonococcus culture was obtained on entrance The second day in the hospital he had a chill, followed by a temperature of 105 F Malarial parasites were found in the blood, but the chills and fever were allowed to continue for four days, at the end of which time the discharge had stopped, and no gonococci from the urethra or urine were found He remained in the hospital for two weeks, without recurrence of the discharge, having had no local treatment whatever

Equally noticeable is the influence of fever on those infections in the medical wards One rarely if ever sees a gonorrheal infection coexisting with some fever-producing disease like pneumonia, typhoid or malaria, while gonorrheal infections are relatively common among the chronic, nonfever producing conditions

By the intragluteal injection of boiled milk or sodium nucleinate, Muller and Weiss[9] produced temperatures as high as 104 7 F in from six to ten hours Satisfactory results were obtained in epididymitis, prostatitis and arthritis by repeated injections Smith,[10] using normal horse serum, had results corresponding favorably with those produced by antigonococcic serum in gonorrheal complications His therapeutic results ran parallel to the reaction produced, which in turn was proportional to the temperature obtained

On the other hand, Jobling and Petersen[6] assert that intravenous injections cause a fluctuation in the ferment-antiferment balance of the serum as well as changes in the coagulation mechanism and the opsonic complement properties "No single factor can be identified as responsible for all the changes" resulting from this fluctuation, but "a whole train of events is inaugurated, all of which tend toward a condition favorable for recovery from infection" That there are factors at work other than fever seems probable Miller and Lusk[11] have found striking therapeutic results in arthritis due to other infections than gonorrheal, as well as in gonorrheal patients, by the intravenous injection of typhoid vaccine These results, obtained in patients with nongonorrheal infectious arthritis, could not consistently be attributed to fever alone, as the streptococcus and other organisms commonly associated with this condition are known not to be especially heat sensitive Again, why should a patient completely recover from arthritis by this treatment and occasionally still harbor live, cultivable gonococci in the posterior urethra? The temperature and leukocytes presumably being equally distributed why should the organisms in a joint disappear and those in the urethra remain? Numbers and arrangement in clumps may be of some importance, while a less resistant organism may be developed by its growth on a new type of tissue Possibly a continuance of the treatment after recovery from the complication would be sufficient to eradicate the urethral gonococci in all instances[12]

The therapeutic results in the group which forms the basis of this report noticeably correspond to the temperature increase and to hyperleukocytosis Considering the facts that the gonococcus is heat sensitive both in vitro and in vivo, that fever patients cannot be experimentally infected with the gonococcus, and that a fever-producing disease spontaneously cures previously existing gonorrheal infections, there can be but little question that fever artificially produced plays some part in the recovery from these infections

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[6] Jobling J W and Petersen William The Nonspecific Factors in the Treatment of Disease The Journal A M A June 3 1916 p 1753

[7] Boerner and Santos Med Klin 1914 **10** 1062

[8] Cited by Kyaw Med Klin 1912 **8**, 1829

[9] Muller and Weiss Wien klin Wchnschr 1916, **29**, 249 abstr The Journal A M A April 15, 1916 p 1281

[10] Smith L D The Value of Anaphylaxis in the Treatment of Gonorrheal Complications The Journal A M A June 3 1916, p 1758

[11] Miller J L and Lusk F B The Treatment of Arthritis by the Intravenous Injection of Foreign Protein The Journal A M A June 3 1916 p 1756

[12] This question is now under investigation as is also the question of finding a substance which may be given safely in standard doses at certain intervals The difference in reaction caused by two supposedly equal bacterial suspensions may be very variable and thus almost necessitates some standard substance if this treatment is to be used by persons other than those familiar with the dangers of a *too severe* reaction

It cannot easily be determined how much influence, if any, the leukocyte increase in the peripheral circulation has, for when artificially produced in the manner employed here, the fever and hyperleukocytosis are invariably present together

It is apparent that the usual treatment of gonorrheal arthritis is not satisfactory in all instances when almost daily one can see an ankylosed joint and atrophied muscles following this condition Should this treatment by intravenous protein injections prove to give permanent results in these conditions, as present data seem to indicate, are we justified in using such measures?

In view of the chronicity of the disease and the destructive complications which commonly arise, it would appear to be a rational procedure when properly used and controlled Until some substance is obtained, however, whose dosage can be more definitely standardized, it seems that this form of treatment should not be used generally by those not thoroughly familiar with the reaction and the manner of regulating the size and interval of dosage of such as used in the work here reported

SUMMARY AND CONCLUSIONS

Intravenous gonococcal vaccines have no specific action either as a diagnostic or a therapeutic agent A similar reaction is secured by suitable injections of meningococci and colon bacilli There is no noticeable difference in the temperature or leukocyte curves produced after the intravenous injection of the foregoing bacterial suspensions

The reactions produced in nongonorrheal patients in every way resembled the reactions in gonorrheal patients, there being no noticeable difference in the temperature and hyperleukocytosis produced

Twenty-four patients with gonorrheal arthritis were treated Complete recovery or marked rapid improvement was observed in all but two instances Eleven patients were treated with gonococci with one failure, and eleven patients with meningococci with one failure, while but two were treated with colon bacilli, and both recovered

Twelve patients with acute gonorrheal epididymitis were treated, and all were apparently completely and permanently cured within a week There was no difference in results produced with the gonococcus, meningococcus and colon bacillus

This mode of treatment in gonorrheal arthritis and epididymitis and at least in some instances of acute prostatitis possesses a decided therapeutic value The results appear to be permanent in character It possesses, however, little or no prophylactic value against the development of new complications

Great care must be exercised in the selection of cases, and patients with organic heart disease should not be treated in this manner No other definite contraindications have been observed

Clinically the benefit to the patient runs parallel with the fever and hyperleukocytosis produced It would seem that these factors play an important role in the treatment

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SYPHILITIC BONE AND JOINT LESIONS SIMULATING TUBERCULOSIS *

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SAN FRANCISCO

Every paper should present its special points in the beginning so that the attention of those really interested may be fixed This paper aims to give two special points first, that there is a considerable number of syphilitic cases simulating tuberculosis and other bone and joint lesions that escape recognition, second, that there is a considerable number of cases of bone and joint syphilis that do not give a Wassermann reaction

In the past year or two I have seen at least eighteen cases of bone and joint syphilis that have given negative Wassermann reactions Some of these were unmistakable syphilis, as revealed by Roentgen-ray examination In others the nature of the process could not be told in this manner In these two groups of cases the clinical histories are strikingly similar in the individual cases in each group In those frankly syphilitic on Roentgen-ray examination the histories are all the same, pain in the affected part, frequently more marked at night, and little or nothing else They have each been in the hands of one or more physicians, some of whom have suspected syphilis, but on account of the negative Wassermann they have been regarded as something else In this group there were four patients, all of whom promptly improved on the administration of mercury and iodids

In the second group, the larger numerically, the lesions were in and about the joints, rather than in the shafts of the bone as in Group 1, and in these cases, too, there was great similarity in the histories Each of these cases had been treated by one or more doctors, many of these patients had been in institutions, teaching institutions or hospitals, and their trouble had been regarded as tuberculosis and they were treated accordingly by immobilization or operation

As case histories are exceedingly boring, I will cite but a few and make these as short as possible

Case 1—L L, Chinese boy, aged 5 years, came to the Stanford University children's clinic with a sore on the back of his hand He was sent to the surgical clinic, where after a little time, the diagnosis of tuberculosis of the carpal bones was made and confirmed by the Roentgen ray He was kept under observation in the surgical department for about a month, then, as the lesion was regarded as tuberculous, the child was transferred to the orthopedic clinic It was then ascertained that he had had this sore on the back of his hand for about ten months At this time he had the hand in plaster of Paris, and through a window in the plaster it could be seen that there was some swelling and two sinuses The sinuses did not seem to be tuberculous, so the boy was put on mercurial ointment and iodids and improved rapidly in spite of the fact that the Wassermann had been negative shortly before the treatment was begun All plaster was removed, and the boy made a rapid recovery A guinea-pig injected with some of the material from the sinus remained perfectly well

Case 2—F M, white man, aged 42 years, sustained a fracture of the lower end of the radius in December, 1913, which healed without any trouble Oct 7, 1914, the man returned to the surgical clinic, complaining of pain and swelling of the right wrist There was diffuse swelling, pain and limitation of motion Roentgen-ray examination at that time showed probable tuberculosis of the wrist, with a possibility of

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syphilis. He was transferred to the orthopedic clinic six months later after having been treated by immobilization by means of plaster of Paris. As the diagnosis was not clear, the man was allowed to go without any support, to see what would happen. The condition remained the same, certainly no worse. The man had no knowledge of any syphilitic infection and his Wassermann was negative in July, 1915. He was put on mercurial ointment and potassium iodid. His pain and swelling disappeared and motion in the wrist increased. By the middle of August the man was practically well, though with some limitation of motion in the wrist, probably due to his old fracture.

CASE 3.—This case was extremely instructive. A white child, aged 2 years, was brought to the clinic complaining of swelling in the foot and lameness, which had begun about two months before and was gradually growing worse. At that time in the children's clinic syphilis was suspected, but the mother took the child away and did not return for seven months. During these seven months the child had been operated on by two surgeons, independently, and the mother was told by each one that the condition was tuberculosis. When the child was brought back a Wassermann was made, which was negative (there had been no medication). There was a small sinus at this time at the seat of one of the operations. This child was also treated with mercurial ointment. The sinus closed rapidly and the child improved very quickly. This child gained 2 pounds in weight in three weeks after beginning the mercury. In six weeks all the signs and symptoms had disappeared.

CASE 4.—K. H., white, aged 2½ years, was brought to the clinic with swelling of the ankle that had appeared at 2 months of age. This child had been treated at one of the teaching universities over a period of twenty-two months as a case of tuberculosis. The treatment was immobilization by means of plaster of Paris. During this time two sores appeared about the ankle which kept discharging. Wassermann on the mother, father, and child were all negative. There seemed to be a slight fusiform swelling on the fibula, which showed some periosteal thickening on Roentgen-ray examination. The Roentgen-ray report read in part: "suggests syphilis of fibula, possible tuberculosis." On this finding the child was put on mercury and all plaster removed. The sinuses healed quickly and the child improved rapidly. In about two months the symptoms all disappeared and the child was practically well. Treatment was, of course, continued. A fusiform swelling at the upper end of the ulna, discovered accidently in the examination of the child, seemed to remove all doubt as to the nature of the process.

CASE 5.—Mrs. G., aged 32 years, was admitted to the hospital complaining of pain and swelling of the right ankle. Without going into all the details, as this was an extremely obscure case extending over a long period of time, suffice it to say that it was at first considered to be an infectious arthritis, then as tuberculosis of the ankle, and finally as syphilis, on account of improvement under mercury as a therapeutic test, even though the Wassermann was negative. Following an intravenous salvarsan and continuing the mercury this patient has remained entirely well.

These five cases were selected at random, and on account of this method of selection the proportion of ankle cases is unduly high. Practically all the large joints have been represented in this series of cases. Eighteen such cases have been seen, five of the ankle and foot, three of the wrist, three of the hip, one each of the elbow, knee, and back, four of the shafts of long bones, all of which have been under the care of competent physicians, and all of which had been regarded as some condition other than syphilis, most frequently tuberculosis. This would seem to indicate that a large number of such cases are going about, for the experience of no one man or institution is peculiar.

The consideration of these cases brings up several interesting questions. Why do we get so many negative Wassermann reactions in bone syphilis? The percentage I am not able to state, but it seems fairly high, at least 10 per cent. Is it because of the chronicity of the disease, and the lack of amboceptors in the blood, not sufficient being set free to bind the complement? In a manner, it is, perhaps, somewhat comparable to the fact that in a chronic, pyogenic abscess there is no increased leukocytosis. Another point that these cases emphasizes is that fixation of syphilitic joint neither gives relief nor aids in a restitution of the part to normal.

Another point is the large proportion of children in these cases, eight out of eighteen, or really eight out of fourteen, being under ten years of age, quite a contrast to the ordinary teaching that syphilitic joints are not common in childhood.

Another question that comes up is what we are to consider as the most reliable test of syphilis. To my mind it is unquestionably the therapeutic test, and lastly the question of the therapeutic test as a diagnostic method. It is my impression that this should never, or almost never, be omitted in trying to arrive at a conclusion concerning the nature of a chronic process in and about a joint. Exception may be taken to this, but in the present state of our knowledge it seems to be the best test we have for syphilis, and without it one is never sure of his diagnosis.

ABSTRACT OF DISCUSSION

DR. H. W. FRAUENTHAL, New York: Ten years ago, I read a paper on syphilitic bone and joint conditions and I was surprised at the small amount of literature in America on the subject. The orthopedic institutions in the United States had few cases of bone and joint syphilis in their records. I was also convinced of its rarity in another way, in asking some of the leading specialists in New York to discuss the frequency of these conditions most of them said that they had never seen bone or joint syphilis. After collecting a number of cases I concluded that syphilis of the bone and joints was much more common than it appeared to be. The reverse was true on the continent. Most continental observers said it was common in children and adults. Fournier says 42 per cent., and Von Hipple 56 per cent., or more than half. In New York I found it almost impossible to convince others that the Roentgen-ray findings meant syphilis, and that antisyphilitic treatment cleared up the joint conditions. After the Wassermann test came into vogue, and was used uniformly in all our cases, we were surprised at the result. We now find that in almost all blood tests we have 15 per cent. of Wassermann positives. These findings are checked up by other laboratories. Where we failed to get Wassermann positives and the roentgenogram indicated that it was syphilis, by giving salvarsan and neosalvarsan we later often got a positive Wassermann. When the reaction in the child and father was negative, as the father took treatment, and the child did not show a positive Wassermann the mother never was treated. She often showed a positive Wassermann. I have seen persons treated from six months to two years for tuberculous joints in cases regarded as tuberculous who yielded promptly to salvarsan and mercury. Some of these are interesting in their apparent persistence in the appearances of tuberculosis before mercury and salvarsan were tried. One patient, a married woman, had brace treatment for a time. Then as the appearances of the roentgenogram were such that one would think that she would get motion in the joint, she had treatment at another institution for a year and a half with the Zander apparatus and massage, in order to get motion. They failed to obtain any motion in the knee joint. She gave a 4 plus positive Wassermann. A single dose of salvarsan and inunctions over her joint resulted, inside of ten days, in giving her 45 degrees of motion. Another patient, a child with keratitis and Hutchinson's teeth, who had been treated a year and a half at another institution for tuberculous knee joint, under a single injection salvarsan and inunctions of mercury for two weeks got a normal range of motion, although there was an inch and a half difference in the two limbs at the beginning of treatment After four weeks both were alike I think that if it were a custom to take a Wassermann blood test in the case of every child, and then extend it to the mother and father, a number of cases thought to be tuberculous would prove to be syphilitic

Dr John Ridlon, Chicago About thirty years ago, I showed a group of cases before the orthopedic section of the New York Academy of Medicine that I believed to be cases of syphilitic joint disease in children, but not one man there would admit that they were syphilitic, and Dr Shaffer even went so far as to say that the result of antisyphilitic treatment proved nothing because Dr Knight, at the Hospital for the Ruptured and Crippled, had always given mercury and potassium iodid for tuberculous joint disease and had obtained wonderful cures in such cases by this means That was before we had the Roentgen ray, the Wassermann test or tuberculin test to help us in the diagnosis There is no question of the fact that some children have syphilitic joint disease who do not give a positive Wassermann reaction, and it is also true that a certain number of syphilitics do have tuberculous joint disease which can be demonstrated to be tuberculous Therefore, the difficulty is very great in making the diagnosis between a chronic syphilitic joint disease and a tuberculous joint disease The acute cases are quite different from the chronic syphilitic joint diseases, and the patients rapidly get well under treatment, while the patients with chronic cases get well much more slowly, but do get well much more rapidly under immobilization and mercury and potassium iodid than do patients with ordinary tuberculous joint disease The diagnosis has to be made by instinct in many cases, instead of by positive clinical facts

Dr James T Watkins, San Francisco Taken as a whole the paper is important, first, because it points out the danger even painstaking observers run of mistaking a syphilitic bone lesion for a tuberculous condition if they put their trust implicitly in the absence of a positive Wassermann reaction Those of us who see much bone and joint disease must agree with Dr Fisher that bone and joint syphilis is much more prevalent in childhood than the literature would seem to indicate Second, of those cases which are clinically syphilitic, Dr Fisher finds that 10 per cent do not give a positive Wassermann reaction I am of the opinion that to estimate them at 20 per cent would be to get nearer the mark Third, of these Wassermann negative syphilitics, those with involvements of the shafts of the bones only present pain worse at night as the one constant symptom These have, however, definite Roentgen-ray changes Fourth, in the group which presents joint involvements, the Roentgen-ray changes may be misleading, suggesting tuberculosis Therefore, all you have to go on is limitation of motion and pain, pain which is not relieved by mechanical protection of the involved joint The only reliable test is the therapeutic one If one would reduce the teachings of this paper to a sentence, one would have to go back to the dictum of the pre-Wassermann clinicians and say with them 'When in doubt treat for syphilis"

Dr Edward Hatch, New Orleans During the last few years I have seen several cases in adults, some of whom came for frank, and some for indefinite joint pain The diagnosis was made by the Roentgen ray, and in each case, the Wassermann test was negative In practically all, the luetin test was positive Therefore, I should like to ask Dr Fisher whether he has made tests of the luetin reaction, and whether he considers this an aid in the diagnosis

Dr Edwin W Ryerson, Chicago It is important, in this connection, to remember that some cases with a negative blood Wassermann may give a positive spinal fluid Wassermann This is not recognized quite enough, nor is quite enough advantage taken of it I have seen about ten cases in the last few years in which the blood Wassermann was negative, and the spinal fluid Wassermann was absolutely positive

Dr Walter G Stern, Cleveland Let us clinicians not forget that Wassermann stated in his original paper that a negative blood reaction is of no diagnostic or prognostic value, unless the reaction continues negative for as long a period as a year to a year and a half, so that one must not be too hasty in ruling out syphilis on the basis of one or two negative serologic examinations

Dr Reginald H Sayre, New York I think that the old Scotch verdict, "Not proved," is very applicable to this case, and I only wish to question the writer of the paper in regard to one point I agree with everything else This point is that he feels that these patients are not benefited by protection Now, I believe that in a great many cases it is as wise to give protection to the syphilitic as to the tuberculous joint I have seen syphilitic hips that went for a considerable period of time with protection and hip splints not undergoing any shortening, and that, when the weight bearing was again permitted, began to telescope It seems logical, in a soft bone, to relieve it from strain, if you wish to preserve continuity

Dr C B Francisco, Kansas City, Mo In the years 1907-1908, at the Hospital for Ruptured and Crippled, before the time of the Wassermann test, in admitting the children we did not label a single case syphilis of the joint diagnosing these cases as tuberculosis, but I hesitate now to make that diagnosis I should like to go a point further in these cases, more especially in those involving the bone near the joint, which are very difficult at times to diagnose Strange to say, some of these patients will get well without antisyphilitic treatment, and you think that you have a tuberculous joint, only to have the patient come back, in the course of a few years, with a chronic syphilitic joint somewhere else, proving that the condition was probably syphilis from the start Nichols says that 50 per cent of the cases of latent bone syphilis give a negative Wassermann, and that we should rather rely on the Roentgen ray than on any one other factor for diagnosis There is one difficulty with the therapeutic test it will not relieve the endosteal bone changes Mercury and iodid will relieve the periosteal changes and the gummatous changes, but the endosteal thickening will remain Another point, advocated particularly in England, is that salvarsan is of no particular value in bone syphilis Mercury and potassium iodid, in the periosteal and gummatous type, should be the treatment of choice

Dr Leonard W Ely, San Francisco Opinion in regard to bone and joint syphilis has changed There used to be skepticism concerning the occurrence of joint syphilis in childhood The essayist has brought out the lack of reliability of the Wassermann test There is no reliable test for joint syphilis The Wassermann test, the Roentgen ray, the clinical course, the history, must all be considered, and then we are not certain about a diagnosis The gross bone changes in syphilis of the joints are exactly the same as those of tuberculosis The changes in the synovial membrane are, in gross, also the same The microscopic and histologic changes are not absolutely reliable If we find what we consider a tubercle, we say the joint is tuberculous, but the pathologist tells us that we cannot depend on the presence of giant cells, and what we are wont to regard as the characteristic changes of tuberculosis The guinea-pig test is the most satisfactory, and yet, we have just had a case in our clinic that we have been working over for the past six months, the diagnosis lying between so-called Legg's (Perthes') disease, syphilis and tuberculosis The patient went to another clinic and was operated on for giant-cell sarcoma The tumor was sent to a pathologist who said that it was probably tuberculosis The material when injected into a guinea-pig gave a negative tuberculous reaction, and we thought that the case was closed Later, however, the operator told us that he had administered tuberculin and got a reaction, and that he regards the case now as tuberculosis Personally, in the absence of the animal test, I regard the therapeutic test as the most reliable

Dr Emil S Geist, Minneapolis I have had several cases in my practice in the last few years in which the diagnosis of bone or joint syphilis was made The history was positive, the Wassermann reaction was also positive, and the roentgenogram showed definite joint lesions, yet when the therapeutic test was applied, it did not give any results When the physician who had correctly diagnosed the case came in we told him that we thought we were dealing with tuberculosis or some other bone or joint trouble Nevertheless, the cases turned out to be syphilitic It has been my experience that in some of these cases, we must push the treatment to the limit, and that really the therapeutic test had not been tried when it had been found wanting in the minds of these men The point that I would make is that bone and joint syphilis is more resistant to treatment than other forms and I have been accustomed to transfer these cases to the syphilologist, because he has been handling more syphilitic remedies and knows better how to apply them than I

Dr Henry Ling Taylor, New York Not infrequently, when the Wassermann is negative in the child, it may be positive in one or both parents, this has been found true in several cases lately It pleased me very much to hear one of the speakers say that the old fashioned mixed treatment is more reliable than salvarsan in bone and joint cases I have also found this to be the case, and it does not seem to be generally known Some men think that they are giving antisyphilitic treatment when they give potassium iodid, but this is a delusion, mercury is the active agent

Dr Robert W Lovett, Boston Most of the remarks have been coincident with my own experience One point I should like to mention is the stimulation of chronic osteomyelitis by syphilis I have had patients with chronic osteomyelitis who gave a positive Wassermann reaction and improved under antisyphilitic treatment About a year ago I went through some plates with Dr Post, professor of syphilis at Harvard University, who has given great attention to the appearances in bone and joint syphilis Some of the plates showed bone syphilis very clearly Some cases that we had diagnosed as osteomyelitis he thought were characteristic of syphilis Many of them were old plates

Dr A E Horwitz, St Louis We see a surprising number of these cases in St. Louis, probably because we look for them In most of these cases the Wassermann is negative, the percentage of negative results being fully 50 per cent , so we do not, as a rule, rely on this test, but look for other essential points In the congenital form, there is usually multiple joint involvement, so we have come to rely on this It is essentially polyarticular, not like tuberculosis with one or two joints involved but, in most cases, quite a number of joints One strong point is the shaft involvement In the joint where the involvement occurs, by looking carefully, we can find some slight involvement in the opposite end of the shaft If we do not, we find a symmetrical involvement of the opposite limb in the same joint That has been very striking and very often demonstrated In spite of a negative Wassermann reaction, we can, therefore, make the diagnosis, because of the fact that the disease improves under antisyphilitic treatment Another point is that in the congenital cases, which are essentially polyarticular, the condition is not entirely articular, but extends into the shaft somewhat, and even in the acquired form of syphilis, wherever there is bone involvement, it also extends into the shaft, and possibly *from the shaft* to the joint So much is this so that we tried to claim that acquired syphilis is not an actual joint condition, but an extension from the shaft, while the congenital form is joint involvement proper, extending to the shaft

Dr Arthur L Fisher, San Francisco My object in bringing up the subject was to set forth the fact that the Wassermann test is unreliable in two ways first, that in a large proportion of syphilitic cases one gets a negative Wassermann, and second, and more important, because of the interpretation given by the profession at large to the Wassermann, that a negative Wassermann means no syphilis We know that this is not true, and I have tried to bring out the fact that all these patients have been in the hands of competent physicians who, on account of the negative Wassermann, regarded the cases as not syphilitic In answer to the remark about the spinal fluid Wassermann, I would say that it is unquestionably a fact that it happens with great frequency that a blood Wassermann is negative, and a spinal fluid Wassermann positive These cases, however, are usually central nervous system syphilis—tabes or cerebrospinal syphilis, and you get in them the so called Charcot joints I have not seen any joint involvement, except these, in such cases With regard to the protection of the joint, I would say that it does not give relief of symptoms in these cases, and does not tend to a restoration to normal Of course, if a diseased area is bearing weight it is wise to protect it I am glad that the subject of the histology of the condition was brought up, because there is a broad general statement that can be made in regard to it, and that is, that without finding the tubercle bacillus, you cannot be sure whether you are dealing with syphilis or tuberculosis You can usually, if you look at a slide, say, "This is a tubercle" or "This is a gumma", but you can never be sure, and even an expert pathologist will not usually give a definite diagnosis on this point Dr Lovett brought out an interesting point, the difference between syphilis and chronic pyogenic osteomyelitis We have been coming to believe that when pyogenic osteomyelitis is multiple, it is usually in a syphilitic patient, either congenital or acquired, and you will usually find some evidences of syphilis in the family in these cases

REPORT OF A CASE OF STRANGULATED DIAPHRAGMATIC HERNIA, WITH OPERATION AND RECOVERY

Charles E Hawkes, M D, Providence, R I

In an article on stab wounds of the diaphragm, with diaphragmatic hernia or evisceration, Dr Charles C Green[1] has reported a total of 123 cases collected from the literature, together with six cases of his own

To this list I wish to add a case of my own, in which the patient was operated on at the Rhode Island Hospital, this summer, during my term of service This case was especially interesting from the fact that the hernia became suddenly strangulated, and the patient's convalescence was complicated by a prompt attack of delirium tremens

The patient, A Le C, man, aged 49, single, white, laborer, well developed and well nourished was brought to the Rhode Island Hospital in one of its ambulances, Nov 17, 1915 He had been stabbed by his roommate, during an argument as to who should do the cooking The wound was in the left eighth intercostal space, nipple line, about 3 cm in length and 1 cm in depth, which bled readily No fracture of the ribs could be detected, nor perforation of any cavity, nor evidence of internal injury The patient complained of extreme tenderness about the cut The incised wound was treated in the accident room with iodin, and sutured with three silk sutures Three days later, the wound was clean, the patient's condition was satisfactory, and he was discharged from the house, and referred to the outpatient department for any further necessary dressing and attention

July 21, 1916, the patient was readmitted to the hospital in the ambulance His history was as follows Since his previous discharge from the house, he had felt well except for occasional belching of gas, to which he paid no attention He complained of no other gastric symptoms He had been a heavy drinker

Two hours before his second admission to the hospital, while at work, he was seized with a sudden, severe attack of pain, in the epigastrium He vomited once, soon after the onset of the attack The pain continued with great severity He managed to get to a drug store, where he collapsed

The man was in extreme agony His face was markedly cyanotic, the pulse almost imperceptible, the skin cold and clammy A general examination was not made, because of his extremely poor condition

The abdomen was exceedingly tender in the epigastrium, and the rectus muscles were rigid to a level with the umbilicus, below which point they were much less tense It was tympanitic all over Distention was limited to the epigastrium The liver dulness was not obliterated Below the umbilicus the abdomen appeared somewhat sunken, fairly soft on palpation and not tender On the left side, the tympany extended to the fourth intercostal space Owing to the patient's critical condition and to the imperative need for rapid therapeutic action, all further examinations, including that of the chest, were postponed

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[1] Green, C C Stab Wounds of the Chest Involving the Diaphragm, with Diaphragmatic Hernia or Evisceration, The Journal A M A, July 15, 1916, p 178

He was given a quarter of a grain of morphin subcutaneously, and 600 c c of saline solution intravenously Heaters were applied externally He responded quickly to this stimulation, the cyanosis diminished, and the pulse became stronger and regular One hour after his admission to the hospital, he was sent to the operating room As the patient had been free from all symptoms referable to his previous stab wound for eight months, and since his present attack came on suddenly and with severity in the epigastric region, and followed an alcoholic history, a diagnosis of perforated duodenal ulcer was made The white blood count was 17,000

Under ether anesthesia, a high right rectus incision was made through the abdominal wall No gas or fluid was encountered when the peritoneal cavity was opened The duodenum except for a few veil-like, red adhesions, was normal, as was also the gallbladder The right lobe of the liver was somewhat enlarged The appendix was short, small and atrophied The ileum was collapsed The right kidney was normal The omentum was not discernible On examination of the stomach no adhesions or thickening of its walls could be detected When an attempt was made to pull it down into the wound for a more thorough inspection, for some reason it seemed to be firmly anchored behind and could not be drawn down Further examination behind the stomach disclosed intestines passing through a vertical rent in the left leaf of the diaphragm To facilitate the operation, an incision was made transversely across the left part of the abdomen, to the extent of 5 to 6 inches from the upper end of the original incision, and the triangular flap laid back, making a large square opening to work through The intestines were found so firmly wedged in the wound of the diaphragm that this also had to be enlarged 1 or 1¼ inches, making the entire opening about 2 or 2½ inches Fairly firm adhesions between the intestines and the hole in the diaphragm had to be broken up before the hernia could be reduced The transverse and part of the descending colon, the omentum, and about half of the small intestines were finally withdrawn from the left chest, through this rent in the diaphragm The omentum was black from extravasation of blood, and was bleeding from many small points It was somewhat adherent about the opening in the diaphragm, and had to be forcibly freed and tied in places The mesentery of the intestines also contained large areas of extravasated blood and abrasions The jejunum was distended, and dark in color The condition of the omentum, mesentery and jejunum was undoubtedly due to the sudden strangulation of the parts, through the traumatic opening in the diaphragm

An interesting point was the ease with which the apex of the heart could be palpated and the pulsations counted through the diaphragmatic rent

The edges of the diaphragmatic wound were seized with Kocher's clamps, and approximated with through-and-through sutures of No 2 chromic catgut, doubled To facilitate haste, a number of through-and-through silkworm-gut sutures were taken in the triangular abdominal wound, supplemented by chromic catgut sutures through the fascia, muscle and peritoneum, and silk in the skin No drain was used

The nurse in the laparotomy room reported that the patient came from the operating room at 7 p m in poor condition He was given a shock enema, which was retained Camphor in oil, 30 drops, was given subcutaneously at 7 30, and every two hours thereafter Caffein sodium benzoate, 2 grains, was given subcutaneously at 8 30 and every two hours Morphin ¼ grain, was given at 8 45 subcutaneously, and repeated in four hours One pint of Murphy drip saline was given by rectum at 11 30 and retained The patient voided at 1 a m He had a good deal of pain all night The following day, the stimulation was continued, and in addition two high enemas of Epsom salt, glycerin and water were given with good gas results The patient talked irrationally at times during the night

The next day, July 23, he became restless and delirious, got out of bed and walked around the room, insisting that he was all right and desired to go home He was transferred to the quiet ward, where his delirium tremens required large doses of sedatives, and some whisky to control. Here he remained under close observation for seven or eight days before it was considered safe to return him to the laparotomy room Part of the time he had to be restrained to be kept in bed

August 1, the stitches were removed and two small plain rubber tissue drains were inserted down to the muscle, to drain small collections of seropus from the incision wounds He slept well from now on

August 14, the rubber tissue drains were left out. The patient was given a back rest, in bed

August 16, the patient was out of bed, in a chair

August 19, he was discharged from the hospital practically cured He returned several times, at intervals of three or four days for dressings The two sinuses, where the drains had been inserted, eventually closed

The temperature chart showed the following Temperature rose to 103 the third night after operation, pulse 115 and respiration 34, during his mental excitability Normal was soon reached, and the temperature touched 100 on only three or four occasions afterward, falling to normal or 99 the next day

The urine, July 22, showed a rusty color, and strong acidity, specific gravity 1 020 albumin a trace, and sugar absent In the sediment were numerous granular casts a few squamous epithelial cells, and an occasional white blood cell

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 287)

CALCULI IN CHILDREN

That urinary calculi occur in children is, of course, recognized, but a summary of the subject by Collins[62] shows that one investigator found "that 45 per cent of 5,900 cases of calculus occurred in children, and that children under five years are especially prone to the condition " Collins finds that children resemble adults in that renal calculi occur in boys twice as frequently as in girls, the majority of cases being found in children under 2 years of age Holt says that small renal calculi are very common in infants, and though these calculi may be voided without symptoms, other observers are of the opinion that renal colic in infants is not rare

The causes of these deposits in children are probably too much nitrogenous food, too much calcium in the food, perhaps too much phosphate in the food or medication, and often an insufficient amount of water Perhaps frequently there are the added factors of bacterial infection and delayed passage of urine to the bladder Gout in the parents can scarcely be called a predisposing cause Bacterial infection, general and later focal, is doubtless a frequent cause With bladder calculi, renal calculi may be presupposed When blood or pus is found in the urine, a careful examination should be made

Sudden pain, apparently abdominal (in a child too young to describe its symptoms), vomiting, and suppression of urine, or bloody urine, suggest a kidney stone, sudden high fever added to these symptoms indicates a kidney infection A history of gravel, or of passage of urine showing a quantity of sediment, may aid in the diagnosis Roentgenograms should be made before operative interference is undertaken

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[62] Collins A N Urinary Lithiasis in Infancy Am Jour Dis Child October, 1913, p 245

It is very difficult to decide whether in young children morphin or codein would mask a necessary symptom in making a diagnosis — as in appendicitis or intestinal obstruction, for instance. At the same time, we are not justified in allowing a child to suffer agony when an adult would insist on the alleviation of his pain. Therefore when the renal colic has been diagnosed, the pain must be diminished. Hot baths may cause relaxation, with a dose of codein proportionate to the age of the child, a few whiffs of chloroform may also be needed. Long continued use of chloroform, however, is not justifiable.

A calculus which has not been passed should be sought by the Roentgen ray and surgically removed, as the lodging of such an obstruction in any part of the urinary tract is a greater menace to a child than to an adult.

The prognosis is unfavorable as many cases necessarily remain undiagnosed until necropsy. Surgical treatment of diagnosed cases, however, should give more satisfactory results.

The child who has passed a stone should be given the following prophylactic treatment: a properly balanced diet, regulation of the bowels, and plenty of water.

BILATERAL KIDNEY STONES

In children, as well as in adults, we frequently find that if stones are located in one kidney, the same condition will be discovered in the other. Speaking conservatively, this is true of 20 per cent of the cases. This is necessarily true as any urinary or digestive disturbance has a tendency to affect both kidneys unless one kidney is made more susceptible by some localized predisposing cause. Hence, before operation both kidneys must be examined by the Roentgen ray. When stones are found in both kidneys, operation on either kidney is accompanied by greater hazard. Of course the more weakened either or both kidneys are from pus, hydronephrosis or nephritis, the graver is the prognosis. Whether or not the two kidneys in these bilateral cases should be operated on at once is a nice medical and surgical question, careful consultation, tests of function and of the blood for retention nitrogen must make the decision.

HEMATURIA

Hematuria, or blood in the urine in tangible amounts, should always be investigated, as it may be of serious import. Traces of blood, which are frequently found, may lead to the discovery of various disease conditions. Real hematuria may appear as clear blood or blood mixed with urine or the urine may appear smoky, as occurs when the kidney substance is the source of bleeding, the blood being thoroughly mixed with urine, albumin and debris. Small amounts of blood may also be found in the urine in chronic nephritis of all types. Other conditions that cause or allow hemorrhage into the urinary canals are traumatism, calculi, cystic degeneration of the kidneys, carcinoma or tuberculosis of any part of the urinary tract, some blood diseases, especially hemophilia, acute infections of the malignant type, acute nephritis, septic infarcts of the kidney substance, and more rarely echinococcus infection. Blood may of course also appear in the urine owing to bleeding from the ureters, bladder, prostate or urethra. Rarely exposure to severe cold may cause blood to appear in the urine in certain individuals. Cardiac insufficiency, with passive congestion of the kidneys, congestion of one kidney due to displacement or to pressure on its blood vessel, a serious lordosis, or serious disturbances of the liver may cause kidney hemorrhage. Cases of hemorrhage have been reported in which there was localized dilatation of the blood vessels. This condition, which is rare, has been termed renal angioma or renal varix. Hematuria as well as hemoglobinuria may sometimes be caused by certain forms of pernicious malarial fever.

Elsner[63] found hemorrhage of the kidneys in 100 per cent of acute tubal nephritis, in 100 per cent of secondary congested kidney (passive hyperemia), in 33 per cent of chronic tubal nephritis, and in 14 per cent of chronic interstitial nephritis. These surprisingly high percentages give evidence of the frequency of hematuria, and should warn against operative interference except as a last resort. A floating kidney which is bleeding should be anchored, since a kidney so displaced as to cause interference with the outflow of blood from the renal vein must be passively congested.

It has been suggested that a kidney passively congested for some time becomes enlarged through dilatation of its blood vessels and is subjected to pressure from its capsule. Decapsulation would relieve this passive congestion and the resulting hemorrhage.

Blood issuing from the urethra will generally precede the passage of the urine or appear in the first jet. If it comes from the posterior urethra or from the prostate gland region, it is apt to follow urination. Blood coming from the bladder may be well mixed with urine, it may appear with strings of mucus, or it may follow urination. Blood from the ureter or from the pelvis of a kidney may follow urination, or the urine may be more or less mixed with it. As stated, blood thus occurring with nephritis generally causes a smoky urine, although clear blood may come from some lesion of the kidney substance.

Urethroscopic and cystoscopic examinations may disclose the origin of the blood. If its source is found to be in the kidneys, the passage of ureteral catheters will show the kidney from which it comes. Roentgenograms may reveal a calculus in the pelvis of a kidney or in the ureter as the cause of the hemorrhage. If the bleeding is due to a stone, absolute rest will usually cause a cessation. If it is due to tuberculosis — a common cause — or to some kidney growth, rest will probably not be efficacious, but, if the hemorrhage is localized in one kidney, surgical intervention may be required. Before resorting to this measure, however, one should take into consideration the health of the other kidney, the seriousness of the bleeding, and the gravity of the symptoms. If the bleeding is due to a displaced kidney, rest and abdominal support will usually remedy it. If it is due to circulatory insufficiency, cardiac tonics and rest will generally cure the condition, as whatever improves the system will of course diminish the hematuria.

Gallic acid has at times seemed to check renal hemorrhages due to disturbances of the blood or to a growth in the kidney. The use of gelatin and calcium chlorid has sometimes been beneficial, as has also been dry cupping over the offending kidney. Cotarnin hydrochlorid (stypticin) and cotarnin phthalate (styptol) have been used with apparent success in some cases of bleeding from the kidney substance. Injections of epinephrin solutions into the pelvis of the kidney through the ureteral catheter has suppressed bleeding for varying periods Blood serum, the administration of suprarenal gland, or the administration of thyroid gland sometimes will prove effective when the hemorrhage is due to a hemophilic condition

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[63] Elsner New York State Jour Med 1913 13, 144

It should be emphasized that the most frequent causes of kidney hemorrhage are renal stone, tuberculosis and circulatory insufficiency It is associated with acute nephritis When accompanied by chills and fever, even though other evident sepsis is lacking, a septic infarct is probable It should also be remembered that hexamethylenamin, which is now so frequently given, may cause hematuria Occasionally blood vessel pressure from an abdominal tumor, or in pregnancy, may produce kidney hemorrhage

ESSENTIAL HEMATURIA

Before applying this designation to a kidney hemorrhage, one must be certain that this particular condition may not come under some other heading Many unexplained hematurias are thus termed, and Braasch[64] states that essential or unexplained hematuria is not a rarity He found that 75 per cent of seventy-seven cases were in males, the majority of whom were between 40 and 50 years of age The duration of this intermittent hematuric condition varied, sometimes continuing for many years Braasch found that high blood pressure was not a usual factor These attacks, in some instances, were accompanied by pain If the bleeding is preceded by a chill, if there is any pus or much albumin, a localized kidney inflammation is the probable cause of the hemorrhage The presence of bacteria signifies perhaps a focal infection Braasch found that in some cases injections of epinephrin solution, 1 2,000, into the pelvis of the kidney, while not curative, would stop the hematuria for a long time He advises nephrectomy in persistently recurrent essential hematuria, when one kidney is healthy, having found nephrotomy of no value in this type of bleeding It should be emphasized that before nephrectomy is employed in these cases, all less severe measures must be thoroughly tried If bleeding then does not cease, the patient becoming exhausted and anemic, removal of the kidney is justifiable Syphilis in some instances causes hematuria, and proper treatment of this disease may be the remedy required

The pathology of these bleeding kidneys generally discloses the fact that the blood flows from the glomeruli, and that there is some kidney degeneration — a fibrosis not unlike that due to prolonged passive congestion or to heart insufficiency, as pointed out by Spitzer[65]

It should be noted that, in many cases called "essential hematuria," plausible causes for the bleeding have later been discovered It should also be noted that chronic nephritis may be present for a long time, causing hemorrhage even though the urine shows, on repeated examinations, no albumin and no casts Such a condition may occur when there is arterial degeneration

HEMOGLOBINURIA

In this condition the coloring matter of the blood appears in the urine without the corpuscles, the urine being dark and containing blood pigment and broken down red corpuscles It may occur in diseases of the blood such as pernicious anemia and purpura, in conditions causing the destruction of the red corpuscles, such as pernicious or malignant infections, in pernicious malaria, or in hemoglobinuric fever, and it may occur when nontested blood is transfused into an anemic patient or into a patient who has suffered hemorrhage The latter incident rarely occurs at the present time, as it is now recognized that the donor's blood must be tested before transfusion can with safety be performed Besides the causes just enumerated, a hemoglobinuria may be produced by poisons of the phenol type, such as coal tar products and potassium chlorate, and also by some snake poisons Carbon monoxid (illuminating gas) poisoning is a frequent cause Chloroform anesthesia may occasionally bring about this condition, as may also large doses of quinin It is not necessary to discuss, in this connection, whether it is more hazardous to allow a pernicious malarial fever with kidney hemorrhage to run its course, or to decrease the fever by administering large doses of quinin, which will tend to increase the flow of blood

Some time ago it was shown by Pearce, Austin and Eisenbrey[66] that there must be a concentration of hemoglobin in the blood of 0 06 gm per kilogram of body weight before hemoglobin appears in the urine If there are very large amounts of hemoglobin in the blood stream, bile pigments will also appear in the urine A limited amount of the hemoglobin debris is cared for by the liver, but when this amount is exceeded the excess debris is secreted by the kidneys Hemoglobinuria is frequently accompanied by hematogenous jaundice

Paroxysmal hemoglobinuria is rare, but periodic attacks, with oxyhemoglobin and methhemoglobin in large amounts in the urine, may occur Men seem to be more frequently afflicted with this form of hemoglobinuria than women These attacks may be induced by cold, and in some cases by syphilis They may be preceded by a chill and followed by a fever, with oft recurring myalgic pains The urine will probably not continue hemoglobinuric longer than twenty-four hours Malarial fever may be eliminated as producing such an attack, however, there usually is some hidden but definite cause

PYURIA

Pus may appear in the urine in amounts varying from very small to large A vaginal cause of pus in the urine in females can readily be excluded by catheterizing In urethritis and cystitis the pelvis of the kidney is more frequently involved in the female than in the male, gonorrhea rarely ascending to the kidney in the male[67]

The bacteria most frequently found in urine are the streptococci, staphylococci, gonococci, colon bacilli, pneumococci and tubercle bacilli

C Beeler and H F Helmholz[68] find, after examining 118 specimens of the catheterized urine of sixty-one female children, that colon bacilli are not normal inhabitants of the female urethra but in extra-urinary infections occurring during the first two years of life the colon bacillus is frequently found in the female urethra, in girls over two years of age the urine is usually free from colon bacilli

(To be continued)

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[64] Braasch W F Clinical Observations on Essential Hematuria The Journal A M A Sept 20, 1913 p 936

[65] Spitzer W M Continuous Painless Renal Hemorrhage and Its Treatment The Journal A M A, Dec 12, 1914, p 2110

[66] Pearce Austin and Eisenbrey Jour Exper Med, 1912 16, 575

[67] Sanders New York Med Jour June 24 1916, p 1226

[68] Beeler Carol, and Helmholz H F The Bacteriology of the Urine in Health Children and Those Suffering from Extra Urinary Infections Am Jour Dis Child October, 1916 p 345

THE TREATMENT OF BURNS BY PARAFFIN

THE JOURNAL has previously commented on the secret proprietary preparation "Ambrine," exploited in this country some years ago as "Hyperthermine" and "Thermozine," and more recently given prominence in this country by extensive newspaper comment In the *British Medical Journal*, Jan 13, 1917, Lieut -Col A J Hull of the Royal Army Medical Corps, who has investigated the treatment, reports that he believes that under this treatment slight burns heal with singular rapidity, and persons severely burned recover who would not have recovered so completely under ordinary methods of treatment He believes that the results obtained depend almost wholly on mechanical factors the protection of the burn from the air, the protection of the newly formed granulations from damage, the splintlike effect of the wax in holding the damaged tissue immobile and at rest, and the heat of the applications, which may encourage the lymph flow and the blood supply to the new capillaries The paraffin cast likewise provides a suitable nidus in which epithelium will proliferate Dr Hull, believing in the efficacy of the treatment, experimented to find a preparation which would be equally efficacious Laboratory experiments were made with a view to impregnating paraffin with various substances and to produce a paraffin possessing the requisite melting point, plasticity and adhesiveness He found that paraffin of a suitable melting point, if heated to 130 C by superheated steam, became mobile and workable and was lowered 2 degrees in melting point It is this superheated steam which is the essential process in the manufacture The results of the application of hard paraffin — treated with superheated steam — to burns seemed indistinguishable from those of "Ambrine"

Dr Hull claims that better results are obtained by the addition of certain antiseptic and stimulating substances The wounds become clean more rapidly, pain is decreased, and the offensive smell associated with the "Ambrine" dressings is avoided It was found necessary to change the treatment of sluggishly healing burns treated by "Ambrine" to a paraffin containing an antiseptic The change was always beneficial

Dr Hull finally succeeded in preparing a formula which in numerous cases gave excellent results Severe burns healed without cicatrices and without extensive scarring The treatment was practically painless He found that burns became clean more rapidly under this formula than under the "Ambrine treatment' The mixture, which he calls No 7 paraffin, and the method of treatment are thus described

> The paraffin treatment is begun at the first dressing very exceptionally in very septic burns, the paraffin is replaced by hot boric fomentations for two days after two days of paraffin treatment
>
> The burn is washed with sterile water and dried The drying is accomplished by placing a dry piece of gauze over the burn An electric drying apparatus such as is used by a hairdresser for drying hair if available is a convenient method of drying the burn
>
> The burn is next covered with a layer of paraffin at a temperature of 50 C The No 7 paraffin has a melting point of 48 C The temperature may be estimated by waiting until the wax shows a solidifying film upon the surface A broad camel hair brush sterilized in wax has been found to be a rapid and painless method of applying the paraffin A spray may be used, but sprays readily get out of order, are troublesome to use and the dressing takes longer In theory a spray should be used in order to prevent any danger to the epithelium In practice, we have found a brush skilfully used, sufficiently satisfactory Sprays are indicated in very painful cases A metal spray of rather large bore should be employed The spray must be immersed in hot water during use
>
> A thin layer of cotton wool, cut the same size as the area of the burn is placed over the wound after the first layer of paraffin has been applied This layer of wool is covered with a second layer of paraffin The wool is cut in thin sheets and pressed between layers of paper in order to obtain thin layers of wool The dressing is completed by applying wool and bandage The burns are usually dressed daily In the later stages, when the burn is clean and only a small amount of pus is formed, the dressing is changed every forty-eight hours
>
> Blisters are not interfered with in any way at the first dressing, the paraffin is applied after washing the burn At the second dressing the dead layers of skin are cut away Sloughs usually separate after a few dressings The separation of sloughs is accelerated by applying a layer of jaconet over the wool and paraffin beneath the wool and bandage dressing

FORMULA FOR NO 7 PARAFFIN

Resorcin	1 per cent
Eucalyptus oil	2 per cent
Olive oil	5 per cent
Paraffin molle [soft]	25 per cent
Paraffin durum [hard]	67 per cent

> Melt the paraffin durum and add paraffin molle and olive oil Dissolve the resorcin in absolute alcohol (soluble 2 in 1) add the alcoholic resorcin and lastly add the eucalyptus oil when the wax has cooled to about 55 C
>
> A smaller amount of resorcin may be used The whole of the resorcin does not remain in suspension, and we have used a paraffin containing 0 25 per cent resorcin with good results
>
> Difficulty having been experienced in obtaining resorcin in large quantity, beta-naphthol, which has the additional advantage of being a cheaper antiseptic has been substituted for resorcin in more recent preparations as follows

Beta naphthol	0 25 per cent
Eucalyptus	2 0 per cent
Olive oil	5 0 per cent
Paraffin molle [soft]	25 0 per cent
Paraffin durum [hard]	67 75 per cent

> We have employed No 7 paraffin in certain stages of the treatment of trench feet The mode of application of paraffin to the ulceration following frostbite is in every respect similar to the application of paraffin in the treatment of burns, and the results have been equally satisfactory

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Experimentation on Man —The limits of justifiable experimentation on our fellow creatures are well and clearly defined The final test of every new procedure, medical or surgical, must be made on man, but never before it has been tried on animals There are those who look on this as unlawful, but in no other way is progress possible, nor could we have had many of our most useful but very powerful drugs if animal experimentation had been forbidden For man absolute safety and full consent are the conditions which make such tests allowable We have no right to use patients entrusted to our care for the purpose of experimentation unless direct benefit to the individual is likely to follow Once this limit is transgressed, the sacred cord which binds physician and patient snaps instantly Risk to the individual may be taken with his consent and full knowledge of the circumstances, as has been done in scores of cases, and we cannot honor too highly the bravery of such men as the soldiers who voluntarily submitted to the experiments on yellow fever in Cuba under the direction of Reed and Carroll The history of our profession is starred with the heroism of its members who have sacrificed health and sometimes life itself in endeavors to benefit their fellow creatures Enthusiasm for science has, in a few instances led to regrettable transgressions of the rule I have mentioned, but these are mere specks which in no wise blur the brightness of the picture—one of the brightest in the history of human effort—which portrays the incalculable benefits to man from the introduction of experimentation into the art of medicine —Osler *Transactions of the Congress of American Physicians and Surgeons* 1917, 7, 7

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SATURDAY, FEBRUARY 3, 1917

IPECAC AND DYSENTERY

Ipecac is the root of a Brazilian herb. It is said to have been in common use in its native country long before it was brought to Europe by Piso at about 1650. Shortly afterward a charlatan by the name of Adriaan Helvetius placarded Paris with the announcement that he had a cure for dysentery. Hearing of this, Louis XIV summoned him to treat the dauphin, who was suffering from this disease. The patient recovered, and the formula, which Helvetius is said to have obtained from a physician in the Netherlands, was purchased by the government for 1,000 louis and made public. Ipecac was one of the ingredients of the formula, and from that day to our time ipecac has been used as a remedy in dysentery, but with varying fortune, it being vaunted by some as a specific and condemned by others as useless. Under any circumstances the vomiting was a heavy drawback.

Until not so very long ago dysentery included all diseases in which blood and mucus appeared in the stools; now we know at least two etiologic varieties, and there is no doubt that the success or failure of the ipecac treatment of the old days in large measure depended on what kind of dysentery was being treated. In India the use of ipecac in dysentery began early and was kept up, as we learn that in 1881 massive doses were used not only in uncomplicated cases but also in cases with abscess of the liver.[1]

In 1817 Pelletier isolated from ipecac the so-called active principle, the alkaloid emetin, which also was used in dysentery with success, at least by some, and in 1910 Vedder in Manila demonstrated that emetin, even in highly dilute solutions, kills *Amoeba histolytica*, the cause of amebic dysentery. Shortly afterward Rogers[2] in India was able to cure acute amebic dysentery in a few days by means of a few hypodermic doses of emetin hydrochlorid. This striking therapeutic triumph has been repeated innumerable times, and is being repeated daily in all parts and corners of the world where amebic dysentery prevails, and emetin is today accepted as an almost ideal specific, being harmless to the body in doses which kill the amebas. In a solution of 1:10,000 it is amebicidal at once, at 1:100,000 in two minutes. Experience indicates that by its use amebic abscess of the liver can be prevented and even cured. Sometimes it is difficult to distinguish between amebic and bacillary dysentery, especially, of course, in the absence of good laboratory facilities; under such circumstances emetin may be of diagnostic value because improvement follows its use in two or three days if the case is amebic. According to Ross, the slightest suspicion of dysentery in Mediterranean troops now calls for the immediate injection of emetin on the chance that it will destroy an enemy whose presence there is ground only to suspect. Like the few, very few, other specifics we have, emetin has its limitations. The promptness and completeness of its specific curative action stand in direct proportion to the acuteness of the attack; in neglected cases in which the destructive trenching and mining of the intestinal wall are very extensive and associated with mixed secondary infections, and in so-called compound cases of dysentery, the emetin treatment may fail of complete success. Emetin also seems powerless against the encysted ameba and hence of but comparatively little influence in ameba carriers. As a direct cure for pyorrhea it seems to have failed, not because it does not act on the amebas which are found in the pyorrheal pockets, but because pyorrhea is not caused by amebas, as asserted by some prematurely. But take it all in all there are few drugs, if any, that have such an interesting, eventful and withal successful history as ipecac.

SOME FACTORS IN MILK PRODUCTION

Recently the view that the mammary gland tends to manufacture a specific product, milk, which is in no sense a mixture of unaltered food components absorbed in part unchanged and reexcreted in the same form, was discussed in THE JOURNAL. This must not be interpreted as meaning that milk production is in ultimate analysis entirely independent of the diet. If constructive units of a suitable sort are entirely lacking in the ration, they will either be derived from the body tissues themselves or milk production must ultimately fail. In this sense the quality of the proteins furnished to a lactating individual is of decided moment, but whatever the protein may be, the milk proteins produced are representative and characteristic so long as they are produced at all.[1]

Again, in the case of the fats, it is doubtless true that abnormal butter has been produced by feeding a cow large quantities of vegetable oils, such as cottonseed oil, linseed oil and sesame oil; but such feeding conditions cannot be regarded as normal. It has been pointed out that the food fat does not go over into the milk so readily in any considerable quantity without "metabolic supervision," as many are inclined to believe[2] The mammary gland attempts at least to secure a characteristic output despite the occasional "escape" of unusual components Some of these, like butter color, doubtless owe their presence in the milk to the accident of their unusual solubility in fats rather than to any other special selective circumstance

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[1] Ross, Ronald: The Treatment of Dysentery, Lancet, London, 1916, 1, 1.

[2] Rogers, Leonard: Dysenteries: Their Differentiation and Treatment, New York, Oxford University Press, 1913.

[1] The Relation of Proteins to Milk Production, editorial, THE JOURNAL A. M. A., Nov. 4, 1916, p. 1374.

If further evidence of the persistence of the mammary gland to produce the normal milk constituents under unusual conditions were demanded, it might be found in recent investigations at the University of Missouri[3] The data derived from a study of the influence of the plane of nutrition on the mammary functions seem clearly to warrant the general conclusion that normal milk and butter are to be expected when the cow is on a supernormal plane of nutrition as well as when the plane of nutrition is normal, provided there are no other influencing factors, such as specific feeds

It has been remarked that underfeeding, for a time at least, need not alter the character of the milk so long as the body stores can be drawn on for needed constructive units Eckles and Palmer have now shown, on the other hand, that overfeeding, that is, an increase in the plane of nutrition above normal, fails to raise the flow of milk above the normal except in certain limited cases, and in these to a small degree at most These facts bring to mind the contention that the secretion of milk may be essentially under control of hormone stimulation, with nervous factors participating in a minor degree The Missouri investigators believe that their newest results admit of interpretation on the basis of this current hypothesis They summarize them as follows The chemical stimulus for milk secretion is the predominating stimulus immediately following parturition, and continues to be so for a period of time, the limit of which is not yet brought out The chemical stimulus for milk secretion is the stimulus which fixes the maximum milk flow for each individual animal It is more or less fixed for each individual Just what controls the extent of the stimulus for individual animals is not as yet known Our present knowledge indicates that it is a problem of heredity as well as one of physiology The chemical stimulus for milk secretion received at parturition is more or less independent of the plane of nutrition of the cow Stated in another way, this stimulus neither requires a constant food supply from without the organism, nor is it increased by an excess food supply from outside the organism Experimental evidence indicates that the chemical stimulus is so strong immediately following parturition that the milk flow will continue at a normal level for an astonishingly long period of time, at the expense of the body, with a food supply entirely inadequate for this purpose It is not possible to increase the chemical stimulus for milk production immediately following parturition by means of an excess food supply

As the lactation period advances, the chemical stimulus for milk secretion is gradually replaced by a stimulus with entirely different characteristics Eckles and Palmer have designated this as the nervous stimulus The nervous stimulus for milk secretion is entirely dependent on the plane of nutrition of the cow Stated in other terms, this means that as soon as the nervous stimulus for the secretion of milk predominates, the milk flow is readily affected by a subnormal plane of nutrition, and can, moreover, be partially restored to its former figure by increasing the plane of nutrition These researches presented by investigators in the field of agricultural sciences are not merely of interest because they bear on the production of food for man in the adult and particularly in the infant period Lactation in the human species is not so readily subjected to accurate experimental observation, hence the knowledge of the possible factors which play a dominant part in the physiology of human milk secretion must be derived from other sources than observations on man The conditions under which human lactating individuals ordinarily exist are, of course, widely different from those pertaining to the domestic animals, yet physiologic principles are often so fundamental in character that the environmental factors are incidental rather than essential, and broad principles are not necessarily vitiated by differences in species, locality, or habits of living

THE VENEREAL DISEASE PROBLEM—I

The sanitary problem of the venereal diseases is at present receiving wide consideration In the countries which are at war, the importance of the subject is emphasized by the ravages which these diseases always produce among troops in war time, and by the anxiety concerning the great increase in prevalence of the venereal diseases which experience has shown follows the return of troops at the end of war But another reason for the present interest in the subject is the opinion, which is evidently becoming widespread among those who are most conversant with the venereal diseases, that in early diagnosis and treatment lie effective measures for the control of these diseases, whenever governments may be persuaded to undertake a thoroughgoing attack against them Among organized efforts which have recently been made against venereal diseases, those of England, Germany and Australia are outstanding The efforts in England are, perhaps, of the greatest practical interest to us because England's social and political conditions approach most closely to ours

The modern English attempts to attack the problems of prostitution and venereal disease may be briefly reviewed, for particularly in their failures they offer instruction to us These attempts may be said to go back to 1864 In that year the contagious disease act was passed, which provided for the regulation of prostitution and medical examination of prostitutes Amendments to this act were passed in 1866 and 1869 The acts never had the support of the British public They were abhorrent to the public sense of social decency, and were opposed on moral grounds by an influential part of the community They were thus necessarily ineffective for the purposes for which they were passed Opposition to them resulted in a royal commission in 1870 which recommended the abolition of the examination of prostitutes In 1879 the House of Commons appointed a committee to consider the subject This committee presented a divided report, a majority being against the repeal of the acts In 1883 the agitation resulted in the abolition of the examination of prostitutes, and in 1886 the contagious disease acts were repealed From 1886 to 1916 the English government has made no national effort to attack the situation

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[2] Food Fat and Milk Fat editorial The Journal A M A Jan 27 1917 p 289

[3] Eckles C H, and Palmer, L. S The Influence of the Plane of Nutrition of the Cow upon the Composition and Properties of Milk and Butter Fat Research Bull 24, Univ of Missouri Agr Expt Sta 1916

In Great Britain, however, as elsewhere, there has been growing up a strong feeling that society must make an organized effort against the venereal diseases In 1898 an insistent demand was made for the appointment of a royal commission to inquire into the prevalence and effects of the venereal diseases In 1899 resolutions, proposed by the British Medical Association, calling for a full inquiry into this subject were passed by the Brussels International Medical Congress Since that time there has been considerable agitation in England, but government authorities have showed reluctance to take up the problem, apparently feeling that the object which was desired was the reenactment of acts for the regulation and examination of prostitutes All of these efforts were fruitless until 1913 In that year, shortly before the meeting of the international congress, public agitation on this subject was started in London by a small group of leaders, and a vigorous resolution on the subject was passed by the International Medical Congress at its meeting in London in 1913 These efforts succeeded in obtaining finally the appointment by the British Parliament, Nov 1, 1913, of a royal commission[1] for the investigation of venereal diseases This commission did not publish its report until March 2, 1916 It devoted more than two years to the investigation of the subject It examined eighty-five expert witnesses, whom it asked 22,296 questions It had as witnesses men who could speak authoritatively on the various topics under discussion, including well known continental authorities on venereal diseases When it is added that the personnel of the commission represented the best British intelligence in its field, it may be seen that the findings of the committee are of great importance, and its report entitled to our most respectful consideration

The commission apparently hesitated about making its report in war time, for fear that with more pressing business it might be overlooked The importance of the subject, however, constrained the commission to make its report in the midst of the nation's preoccupation As a matter of fact, the issuance of the report at this time proved to be particularly opportune The importance of the venereal diseases was brought home to the country by the war in a way in which it could not have been done at any other time This is shown by the fact that the essential, and most of the detailed, recommendations of the commission were carried into legal effect by action of the English Local Government Board, July 13, 1916—four months after the report was presented

The report of the commission is restrained and temperate, and marked by sound appreciation of the practical difficulties of the problem It shows not a suspicion of hysteria, but, on the contrary, is distinguished by the practical common sense which it has brought to bear on all of the aspects of the subject The commission made no effort to consider prostitution alone, and it makes no suggestions as to the remedying of that social defect It did, however, consider the question of registration and examination of prostitutes, and it sought the advice of continental medical authorities among others on this point

The report can be briefly summarized It holds that registration and medical examination of prostitutes are ineffective as a sanitary measure It recommends against compulsory notification of venereal diseases at present It urges the importance of education as to the seriousness of venereal diseases and the dangers of their transmission It recommends the encouragement of well considered efforts for inculcating sexual restraint It puts its great emphasis, however, on the therapeutic attack on syphilis, and by its recommendations indicates its opinion that in this lies the hope of the sanitary control of the plague It is here that the report is definite and positive in its recommendations In early and continuous treatment it finds the effective weapon against the venereal diseases, and in widespread state provisions for the diagnosis and treatment of the venereal diseases a practical way leading to a solution of the difficult problem which these diseases present

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[1] The purpose of the commission was said to be 'To inquire into the prevalence of venereal diseases in the United Kingdom their effects upon the health of the community, and the means by which those effects can be alleviated or prevented it being understood that no return to the policy or provisions of the Contagious Diseases Acts of 1864 1866, or 1869 is to be regarded as falling within the scope of the inquiry ' The commission was formed as follows Lord Sydenham of Combe F R S (chairman) noted for his public service, the Right Hon Sir David Brynmor Jones, K C, M P Sir Kenelm E Digby and Sir Almeric FitzRoy representing the legal and official side of the commission Sir Malcolm Morris, F R C S Edin Mr James Ernest Lane, F R C S Eng Sir John Collie M D Dr Arthur Newsholme, Dr F W Mott F R S and Mrs Scharlieb M D noted as medical *workers in this field* Canon J W Horsley, the Rev J Scott Lidgett, D D Mr Philip Snowden M P and Mrs Creighton religious and service workers and Mrs Burgwin experienced in the care of the feebleminded The secretary of the commission is Mr E R Forber, an official of the Local Government Board The London Lancet notes that the only omission from the committee which calls for notice is the absence of any member able to give first hand advice on the conditions in the military and naval services

The report thus offers no startling findings It presents no new remedy It has, however, considered with great thoroughness all of the practical aspects of the problem, weighed them with unprejudiced judgment, and with quiet courage made the radical recommendation that the English government shall provide universal opportunities for the diagnosis and treatment of the venereal diseases It submits a detailed plan for carrying out its recommendations as regards providing opportunities for diagnosis and treatment The various recommendations of the report cannot be considered in the brief space of one notice They are so important and so interesting that we shall revert to them later

THE BOAS-OPPLER BACILLUS

About twenty years ago, Boas and Oppler[1] described the frequent occurrence of a long bacillus in the gastric contents of persons with carcinoma of the stomach This appearance of what has since been known as the Boas-Oppler bacillus was repeatedly verified It was found that the micro-organism cannot thrive in the presence of a normal gastric reaction due to hydrochloric acid, and it seemed to require a marked stagnation of the stomach for suitable development As decreased gastric secretion of hydrochloric acid and diminished motility of the stomach commonly exist in cases of cancer of this organ, suitable opportunities are afforded for the growth of the Boas-Oppler bacillus

In the minds of many practitioners, the finding of this micro-organism in stomach contents has come to have an almost specific diagnostic significance Without knowing anything of its real origin and its bacteriologic relationships, they have endowed it with a special pathognomonic importance which has never been entirely warranted and has lost much of its earlier significance in the light of present knowledge Long ago it was pointed out not only that the Boas-Oppler bacillus may be found at times in normal stomachs but, further, that it seemed to be related to the lactobacilli in general Heinemann of Chicago, in particular, demonstrated that bacilli belonging to what is now familiar as the *B bulgaricus* group of organisms may be found in samples of gastric juice from healthy as well as carcinomatous stomachs The close relationship of the Boas-Oppler bacillus with the lactobacilli, to which so much prominence has been given of late in relation to sour milk therapy, if not its actual identity with them, must be accepted

Bacilli of the *B bulgaricus* group are widely distributed in nature They have been found in fodders and foods serving for animal and human consumption, in soil, in feces, in saliva — to enumerate only a few of the sources In a recent study of the lactobacilli, Heinemann and Ecker[2] remind us that since these micro-organisms have been found in saliva and feces under normal conditions, it would be surprising if they did not exist normally in the stomach Their presence in the digestive tract is a natural result of their frequency in foods, especially milk and milk products Furthermore, this group of bacilli is able to resist a relatively high degree of acidity, and to survive where other bacteria are largely destroyed Consequently the hydrochloric acid of the stomach is not absolutely destructive to them, although it undoubtedly restrains their growth

It seems logical to assume further, with Heinemann, that reduction in the amount of gastric acid or its absence will permit growth of bacilli of the bulgaricus type — an assumption which may readily explain the finding of any lactobacilli in large numbers in cases of gastric carcinoma If this is true, they may be expected to be present in any pathologic condition which reduces the normal acidity of the gastric juice Such is, in fact, the case The presence of large numbers of the Boas-Oppler bacilli which gain access to the alimentary tract with the food is merely an indication of a reduction of the normal hydrochloric acid content, whether this is due to gastric ulcer, gastritis, pernicious anemia, or gastric carcinoma and possibly other pathologic conditions Any specific diagnostic import beyond this is no longer tenable

Recent investigations of the Boas-Oppler bacilli[2] make it probable that they are familiar lactic acid-producing organisms which occur in saliva and in the contents of the digestive tube They are said to be common in the feces of bottle-fed infants, but relatively scarce in the alimentary contents of those which are breast fed The typical lactobacilli have also been found in the decayed contents of teeth from which desiccated mucus has been removed, suggesting that the *Streptothrix buccalis*, long believed to be associated with dental caries, also may be closely related to the organisms here under discussion All of these facts warn against attaching too much specific significance to the occasional finding of lactobacilli in the gastric contents

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Disease and the Chinese —It is commonly said that diabetes is unknown in China, yet a recent incomplete investigation brought to light over 200 cases Nervous diseases are accounted rare among the Chinese, yet even a short experience has shown their incidence, at least in Changsha, to be as great or greater than in this country The idea of easy childbirth and freedom from puerperal and postpartum infection is contrary to much experience and certainly is not supported by the Chinese aphorism that a woman in labor has one foot in the grave The group of neuroses, functional digestive disorders, gastric and duodenal ulcer, malignant, nutritional and constitutional diseases are without doubt vastly more prevalent in China than accredited to be So we might go through the list We must challenge every statement of a superior racial vitality in the Chinese on the ground of superior resistance to disease, until such time as demonstrable scientific proof and controlled statistics are presented in its favor — Dr Alfred C Reed, *Scientific Monthly* January, 1917

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[1] Boas and Oppler Zur Kenntniss des *Mageninhalt* beim Carcinoma ventriculi Deutsch med Wchnschr 1895 **21**, 73

[2] Heinemann P C and Ecker E E A Study of the Boas Oppler Bacillus Jour Bacteriol 1916 **1**, 435

Current Comment

EGGS AND THE HEN

Next to milk and cereals, eggs probably play the most prominent part in the special dietaries of the sick, because of the advantageous composition of eggs from the standpoint of their nutritive value Not only do they contain representatives of a variety of types of foodstuffs, but they also are palatable and lend themselves to culinary manipulation so as to meet a great diversity of tastes Even most vegetarians are willing to include eggs in their list of acceptable food products These facts help to account for the cry which has arisen at the advancing price of eggs, the much debated cause of which we may discreetly pass over in silence *In view of the situation, it is not* without interest, however, to learn what hens can do to meet the emergency The fourth annual international egg laying contest conducted by the Storrs Agricultural Experiment Station of Connecticut included 1,000 birds which laid an average of 152 eggs per hen during the year One enterprising hen laid sixty-four eggs in sixty-four days Other good individual records, which are not intended to represent the acme of laying possibilities, showed a production of more than 250 eggs per year As every one knows, the egg production is not uniform at all seasons of the year, the maximum occurring in the spring and summer months Dietotherapy and institutional dietetics need to bear these facts in mind — or suffer the economic consequences

PROVING "INTENT"

A brief item appears in this week's Propaganda department on the failure of the federal authorities successfully to maintain the criminal charge against Brinkler, the self-styled food expert, of using the mails to defraud Few realize the tremendous difficulties that confront the prosecution in cases of this kind The Office of the Solicitor of the Post-Office Department under both past and present administrations, has done notable public service in putting out of business some of the most pernicious swindles perpetrated on the American people Samuels, with his "eye drops" cure-all and Moses, the "Oxypathor" faker come to mind as cases in which the government successfully maintained criminal action against the individuals Moses and Samuels are now in the federal penitentiary The great stumbling block in the way of the federal officers is that requirement in the law which makes it necessary for the prosecution in such instances to prove not only that a fraud has been perpetrated, but also that the man engaged *in the business* knew that he was defrauding In other words, the government has to prove "intent" To keep out of the penitentiary it is only necessary for quacks of the Brinkler type to show with some plausibility that they humbugged the public in good faith in a mistaken belief in their own panacea When such an attitude can be maintained, a verdict of "not guilty" is a foregone conclusion Under these conditions, the greater the ignorance of the individual prosecuted, the easier it is to convince the jury that the man really believes in his own magic, and the more difficult the problem of putting him where he will cease to be a menace to the public health Of Brinkler's ignorance, his "literature" and other material are the most palpable evidence This fact, rather than any failure on the part of the federal officials to prove the inherent falsity of Brinkler's claims, is probably responsible for his acquittal It is a pity that there is not a more general recognition of the principle enounced by Goethe that "nothing is more dangerous than active ignorance"

NATIONAL LEPROSARIUM BILL PASSES SENATE

As noted in our news columns in this issue, the passage of the bill providing for a national hospital for lepers marks the successful completion of efforts that have been made for a number of years[1] to secure the establishment by Congress of a national institution in which may be gathered, for care and treatment, those unfortunate persons who may be infected with leprosy The number in any one state is too small to justify the establishment of state institutions The popular horror of leprosy and the absence of adequate provisions for the care of lepers have led in the past to extremely cruel and inhuman incidents which, it is hoped, will in the future be impossible The removal of infected persons forming possible centers of infection will doubtless tend to check the spread of the disease, while rigid quarantine inspection will halt all immigrant lepers at our ports of entry The passage of this bill is a distinct achievement for public health, and marks not only a growing disposition on the part of Congress to legislate constructively on public health questions, but also the constantly expanding importance and scope of the United States Public Health Service To Senator Ransdell of Louisiana, chairman of the Senate Committee on Public Health and National Quarantine, and to Mr Adamson of Georgia, chairman of the House Committee on Interstate and Foreign Commerce, is due a large share of the credit for the success of this measure

"MUCKRAKING" IN MEDICINE

"One of the things that has made today a bolder, better time than what Mr Ade calls the 'yappy seventies' is muckraking Call it muckraking if you like call it honest journalism if you choose—the power to call men and things by their real names has shot our fair and colder nation several inches closer to the far-famed millennium"

This from F P A's "Conning Tower" in the New York *Tribune* As is usual when he philosophizes, Mr Adams scores a bull's eye While the paragraph quoted applies to lay rather than medical journalism, the thought expressed is applicable to both The "muckraking" with which THE JOURNAL has been charged has, to paraphrase Mr Adams' statement, made medicine today a bolder, better profession than it was in the "yappy seventies" And, extending the comparison still further, the power of organized medicine to call men and things by their real names has brought our profession appreciably closer to the scientific millenium

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[1] A National Leprosarium, Current Comment THE JOURNAL A M A March 4, 1916 p 746 Dec 16 1916 p 1855 General News Jan 22 1916 p 287 May 13 1916 p 1560 June 10 1916 p 1685 Dec 16, 1916 p 1858

THE FATE OF PHENOLSULPHONEPHTHALEIN

The employment of the phenolsulphonephthalein test as an index of renal functional capacity is rapidly becoming generalized No doubt one of the reasons for this is, as was recently pointed out in The Journal,[1] that it is the method which most readily lends itself to use in general medical practice The interpretation of this test has hitherto been based on the supposition that the retention of more than from 20 to 40 per cent, that is, the appearance of less than from 60 to 80 per cent in the urine within two hours after injection, is an indication of deficient functional activity According to Kendall,[2] phenolsulphonephthalein may in certain experimental conditions be destroyed in the body, and therefore not appear in the urine, although the kidneys may be functioning normally He is inclined to attribute this destruction to the reducing action of an enzyme (reducase) Whatever the mechanism involved, these observations are of importance Should they be confirmed, it will be necessary to ascertain whether or not this phenomenon occurs clinically in the human being and, if so, in what class of cases and to what extent We may ultimately be obliged to limit our interpretation of the results of this test to this that an excretion of from 60 to 80 per cent—that is, a positive result—within two hours after the injection of the phenolsulphonephthalein is evidence of satisfactory renal activity

NOSTRUM ADVERTISING AND THE AGENCY LEVERAGE

The ramifications of the fraudulent "patent medicine" business are many The acceptance of advertising from such concerns by small country newspapers is not always an indication of a low ethical standard of advertising, at least not wholly so One of the developments of modern business is the advertising agency, to which many concerns, instead of attempting to handle their own contracts, turn over their advertising business These agencies place the advertisements in such publications as their special knowledge and judgment suggest will bring the best returns to their clients Large agencies, having the power of dispensing advertising largess, naturally possess no little influence with publishers Supposing, then, that the manager of a large agency is financially interested in a fraudulent "patent medicine" business whose advertising he handles — and there are some such cases Suppose, further, that he submits an advertisement of the nostrum in which he is interested to a country newspaper publisher who tries to keep his advertising pages clean If this country publisher rejects the "patent medicine" copy, he puts himself in the position of offending a man who has the power to send to him, or withhold from him, much reputable advertising business during the course of the year As one of the big advertisers of the country has said "Naturally publishers — particularly the little fellows — hesitate' to offend a concern which sends them so much business even though they hate to accept this particular kind of advertising" When next you feel like "jumping on" the publisher of your local paper because of some particularly flagrant nostrum advertisement, find out before you do so just how much economic pressure is being exerted, directly or indirectly, to make him accept such advertising

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest such as relate to society activities, new hospitals, education public health, etc)

CALIFORNIA

Typhus at Clovis—Two persons with typhus fever have been discovered in a Mexican camp at Clovis and have been removed to the County Hospital for treatment. They recently came from Mexico to the camp in Clovis The camp has been quarantined

Medical Lectures—The lectures of the thirty-fifth popular course given in Lane Hall, under the auspices of Stanford University Medical School, will be as follows

February 9 Poliomyelitis" Dr William C Hassler, Health Officer of San Francisco

February 23, The Importance of Proper Habits of Carriage as a Basis of Health ' Illustrated Dr Harry L Langnecker, Clinical Instructor in Orthopedic Surgery, Stanford Medical School

DISTRICT OF COLUMBIA

Podiatry to Be Regulated in the District.—A bill for the regulation of the practice of "podiatry" in the District passed the Senate, January 25, and now goes to the House In the bill "podiatry" or chiropody ' is defined as the surgical or medical treatment of all ailments of the human foot, except the correction of deformities requiring the use of the knife amputation of foot or toes, or the use of an anesthetic other than local The bill does not interfere with physicians in the discharge of their professional duties The board of medical supervisors is charged with the duty of carrying the act into effect A schedule of preliminary and technical education is laid down for new applicants, progressing gradually in requirement until 1920 when the applicant must have a four-year high school course or its equivalent and must be a graduate of a podiatry school acceptable to the board of medical supervisors

ILLINOIS

Change Meeting Date—The Illinois State Medical Society has changed the date of the annual meeting from May 15 to 17, to May 8 to 10

Communicable Disease—Three cases of spinal meningitis have developed at the Great Lakes Naval Training Station, with one death The liberty privilege for recruits has been temporarily suspended and all the apprentice seamen are under observation

Infirmary Given to State University—Dr Edmund J James president of the University of Illinois, announced, on January 25, that Hon William B McKinley, Champaign, congressman from the Nineteenth District, has given bonds and stocks valued at $120,000 to the university for the establishment of an infirmary for the use of the students and faculties of the institution

Chicago

New Research Laboratory—The Chicago Medical Society has asked the president of the county board for a pathologic and research laboratory building and a new morgue at Cook County Hospital, at a cost of $750 000

Ambulance Corps to Be Formed—An ambulance corps of the medical students of the University of Chicago is in process of formation under the direction of Dr H Wernicke Gentles, in local charge of the work of the American Red Cross

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[1] Disturbances of the Kidney Therapeutics The Journal A M A Dec 2 1916 p 1673

[2] Kendall E C The Fate of Phenolsulphonephthalein When Injected into the Animal Organism, The Journal A M A this issue p 343

Bloodgood in Chicago—Dr Joseph C Bloodgood, Baltimore, visited Chicago, January 26 as the guest of the Chicago Dental Society, and gave an address on "The Preexisting Lesions of Oral Cavity and Their Relation to Malignant Disease"

Farewell to Healy—A farewell dinner was tendered by the Chicago Ethical Society to Dr and Mrs William Healy, January 30 Addresses were made by Dr Healy, Prof W I Thomas of the University of Chicago and Dean W H Wigmore of Northwestern University Mr Horace J Bridges presided——The Chicago Neurological Society has adopted resolutions expressing appreciation of Dr Healy's work and regrets at his departure, and good wishes for him in his new field of labor

MARYLAND

Hospitals Need Room—At the annual meeting of the board of trustees, the board of managers and the staff of the Union Protestant Infirmary January 26 plans for obtaining $325,000 for a new building were launched A site has already been purchased

Mental Hygienists Hold Meeting—The Mental Hygiene Society of Maryland met in Baltimore, January 24 Dr Adolf Meyer, Baltimore director of the Phipps Psychiatric Clinic, Mr Leaon Faulkner superintendent of the Maryland School for Boys, and Mr G H Reeves, assistant superintendent of schools, were on the program

Hebrew Hospital Plans Annex—At the annual meeting of the Hebrew Hospital, the Jewish Home for Consumptives, and the Hebrew Educational Alliance, Baltimore plans were considered for a new structure to cost about $200,000 Dr Harry Adler Baltimore, was reelected president of the Hebrew Hospital and Dr Jose L Hirsh, Baltimore president of the Educational Alliance

MASSACHUSETTS

Cup Presented to Forsyth—January 20 the Forsyth Dental Infirmary for Children Boston was opened for public inspection Special cases were shown clinics were held lectures were given and a loving cup was presented to Mr Thomas A Forsyth

Personal—The summer home at Braggville of Dr Alonzo J Shadman, West Roxbury Boston was destroyed by fire January 17 with a loss of $15 000——Dr Stanley H Osborn, district health officer for Berkshire District, has been appointed state epidemiologist, to fill the vacancy caused by the resignation of Dr Walter H Brown——Dr Howard A Streeter, Marblehead has been appointed district health officer of Berkshire District——Dr Edward H Trowbridge has been appointed chairman of the board of health of Worcester

Harvard Medical Lectures—The free public lectures to be given on Sunday afternoons at 4 o'clock during February under the auspices of the Faculty of Medicine of Harvard University at the Medical School, Longwood Avenue, will be as follows

February 4—Dr J L Morse Feeding and Its Relation to the Infant s Development

February 11—Dr I T Cotton, The Development of Employer s Liability Insurance in Accident and Sickness"

February 18—Dr E H Place, Does It Pay to Have the Contagious Diseases During Childhood?

February 25—Dr Percy G Stiles Sleep"

MINNESOTA

Free Antitoxin—The state board of health has made Hastings a free distributing station for diphtheria antitoxin, with a health officer in charge

Poliomyelitis Deaths—Dr Henry M Bracken, secretary and executive officer of the state board of health, reports that during 1916 there were 906 cases of infantile paralysis with 104 deaths Of these patients, seventy-five were adults

Free Lectures at University—February 14, the lecture in the free course announced by the University of Minnesota to be given by the faculty will be on "Cancer in the Light of Modern Research,' by Dr Harold E Robertson——February 28, Prof R W Thatcher will deliver a lecture on "Plant Life and the Chemist"

Hospital for Worthington—Articles of incorporation have been filed by the Worthington Hospital with a capital stock of $60,000 The incorporators are Drs Frank M Manson, president, C P Donal, vice president, and Justin T Smallwood, secretary-treasurer, and J N Gould The building will be of steel and concrete and fireproof throughout

MISSOURI

Dinner to Ambulance Company—Jackson County Medical Society gave a dinner in honor of the members of Ambulance Company, No 1, N G Mo, commanded by Capt William Gist, which recently returned from the Mexican border

Home for Jackson County Medical Society—The Jackson County Medical Society has paid off all indebtedness on its property, Robert Gilham Road and Thirty-First Street, Kansas City, and expects to put up a permanent building on the site.

School of Hygiene Opened—The Kansas City Board of Health has opened a school of hygiene and sanitation for employees Attendance is obligatory at the weekly meetings to be held on Saturdays The employees of other departments having duties auxiliary to the health department will be invited to attend

Protection of Children—The Children's Code Commission has introduced about thirty-five bills in the legislature covering the protection and care of destitute and neglected children, delinquent children, defective children, child workers statewide medical inspection of schoolchildren, protection of the eyes of new-born children, and the establishment of county boards of welfare

Personal—Dr Oliver C Gebhart, St Joseph, major commanding Field Hospital, No 1, N G Mo after six months' service on the Mexican border, was the guest of honor at a dinner given by the citizens of St Joseph, January 8, to welcome the return of the organization——Dr George E Muns Montgomery City has been appointed a member of the board of curators of the state university, succeeding Dr John C Parrish, Vandalia, term expired

Irregulars Punished—G W Sollars, a chiropractor of Joplin, is said to have been fined in the circuit court for practicing medicine without a license——Dr James Clement, a cancer specialist" of Kansas City, who left Kansas City pending an appeal after having been sentenced to imprisonment for a year in the penitentiary and a fine of $500 for falsely advertising a cancer "cure," was apprehended in Idaho by the federal authorities and has been returned to Kansas City

Division of Health Department—Kansas City has divided its health department into a hospital and a relief division and a health and sanitation division Each division will be directed by a superintendent, and both divisions will be under the charge of a health director who has not yet been named Each superintendent will receive a salary of $2 400 and the health director $3 000 Under the hospital relief division will be bureaus for the General Hospital, the Negro Hospital, the Emergency Hospital the Isolation Hospital, Sanatorium for Tuberculosis the hospital at the municipal farm and the Girl's Detention Home Under the division of health and sanitation will be the bureaus for sanitary food and dairys school inspection dental inspection, garbage and vital statistics Dr Thomas F Miller will be superintendent of the first division and Dr George P Pipkin, superintendent of the second division

St Louis

Personal—Dr Jerome F Potts sailed from New York, January 20 to join one of the Harvard units for six months' service in France

Medical Unit Organized—The St Louis Unit of the American Physicians Expedition Committee has been organized for service in Germany and Austria Dr Walter C G Kirchner will be in charge and will have associated with him Drs Benjamin W N Klippel, L H Bock and Allan A Gilbert Four nurses will accompany the party They will sail from New York, February 7, on the *Frederik VIII* and will report to Ambassador Gerard at Berlin

NEW YORK

Typhoid at Gowanda—There is an outbreak of typhoid fever at the Gowanda State Hospital, where sixteen cases of the disease had been reported up to January 25

Tissue Examinations for Diagnosis—The department of health offers to examine tissue and make a microscopic diag nosis on specimens sent in by physicians [illegible] by letter or telephone in from twenty [illegible]

Appropriation for State Hospital.—The [illegible] of the senate and assembly have agreed [illegible] institutions covering a period of [illegible] expenditure of $20,000,000. This money will be used [illegible] new hospitals for the insane and institutions for the feebleminded as well as repairs for existing institutions.

Sargol Exploiters Found Guilty.—The case of the United States against Willie B. Jones and H. L. Woodward [illegible] proprietors of "Sargol" came to an end January [illegible] 1917 [illegible] trial lasting thirteen weeks. Sargol is a [illegible] sold as an alleged flesh builder and exploited [illegible] ton. The trial took place in Auburn and was [illegible] most bitterly contested 'patent medicine' cases [illegible] of the federal court. The government's case was [illegible] ducted by Assistant United States Attorney [illegible] the case was heard before the Hon. Judge George W. [illegible] Jones and Woodward were found guilty as charged [illegible] indictment.

After Care of Poliomyelitis.—Acting Commissioner [illegible] R. Williams of the state department of health [illegible] ment, January 27, showing that out of 2,887 poliomyel[illegible] patients reported prior to Oct. 1, 1916, 1,891 had been exa[illegible] ined by department surgeons up to January 20, and [illegible] 996 patients otherwise not accounted for [illegible] are either entirely recovered or are under competent [illegible] pedic care. Since October 17, seventy-two clinics have been held in the state, with an average attendance of twenty-[illegible] Instructions for after care have been left with local physicians and parents, and trained nurses have been [illegible] centers of infection to supervise this after care. [illegible] appliances have been supplied free if the parents were [illegible] to meet the expense. The department is now undertak[illegible] follow up system of examinations.

New York City

State Civil Service Examinations.—Examinations for [illegible] state, county and village service will be held in various [illegible] throughout the state February 24 for women [illegible] paralysis after care. Applications must be filed in the [illegible] of the Civil Service Commission on or before Feb. [illegible]

Correction.—Regarding the item in The Journal [illegible] 13 entitled "Bronx Doctors Raise Fees," information [illegible] been received that the Bronx County Medical Society [illegible] not taken up the consideration of a schedule of fees [illegible] the reports which appeared in the daily papers as well [illegible] the medical journals were erroneous.

Lectures on Feeblemindedness.—New York University announces a course of fifteen lectures on feeblemindedness, its causes, consequences to society and method of treatment. The course has been organized by Dr. Thomas W. Salmon. The first lecture was delivered January 26 by Dr. Henry H. Goddard.

First Case of Smallpox in City this Winter.—The first case of smallpox in Greater New York this winter was reported January 22. The victim is a colored man who came from Wilmington, N. C., January 4. In 1874 there were 1,4[illegible] cases of smallpox in the old city, in 1875 there were 3,307 [illegible] in 1885, 98 cases; in 1915 in the greater city there were 2 cases, in 1916, 7 cases.

NORTH CAROLINA

Antiproprietary Medicine Bill Passed.—A bill prohibiting the sale or advertising in the state of patent proprietary medicines purporting to cure so-called incurable diseases was passed, January 27, by the upper house of the general assembly.

New Hospitals.—At the recent session of the Western North Carolina Conference of the Methodist Episcopal Church South held in Gastonia it was decided to erect in some city of western North Carolina a large general hospital capitalized for $150,000.

OHIO

Health Survey of Piqua.—Surg. Carroll Fox, U. S. P. H. S., is making a health survey of Piqua.

Trachoma in Ohio.—The state department of health has sent a questionnaire to all ophthalmologists practicing in Ohio with a view to determining the foci of infection of trachoma.

New Officers.—Toledo Academy of Medicine: president, Harold J. Morgan; vice president, Dr. Charles Lukens; secre-

[illegible] Health [illegible] [illegible] rected [illegible] Vital [illegible] Health Depart[illegible] present undue [illegible] the value [illegible] Columbus of [illegible] status of [illegible] that in only [illegible] regularly [illegible] benches and [illegible] W. H. Dittoe and [illegible] Dr. Roscoe P. [illegible] Three Deaths and a [illegible] Housing Con[illegible] tion was led by [illegible] Cincinnati. The senti[illegible] should be replaced by [illegible] all cities of Ohio were [illegible]

Cincinnati

Personal.—Dr. John F. Bencke, who has been critically ill, [illegible] reported convalescent.——Dr. Louis [illegible] with the Italian Red Cross.——Dr. Wade [illegible] recently returned from the Rockefeller Foundation [illegible] South America, was operated on for appendicitis [illegible] on January 2, and is doing well.

PENNSYLVANIA

Health Conference.—A conference of physicians will be held February 16 at the state capitol, Harrisburg, under the auspices of the Division of Industrial Hygiene and Engineering of the Department of Labor and Industry.

Charity Budget Increased.—The increased cost of living and the growing population have caused a material increase in the sum recommended by the State Board of Public Charities for appropriations for state, semistate and private institutions. Two years ago the total recommended was $12,142,673.48, while this year's board recommends $15,041,884.

Medical Society Against Free Practice.—A pledge from all new members against free treatment in or out of hospital dispensaries for patients able to pay will be exacted hereafter by the Philadelphia County Medical Society. Resolutions endorsed by the society are as follows:

That physicians who are now working without remuneration in hospital dispensaries request the management of such to institute an efficient system of investigation of the social and financial status of each patient admitted, and that each such patient be supplied with evidence of this investigation before presentation to the physician for second treatment

Philadelphia

New Ambulances—Two new ambulances are soon to be in service with the American Field Ambulance Corps at the French front as a result of donations received by the American Ambulance Hospital Committee of the Emergency Aid

New Officers—At the annual meeting of the Philadelphia County Medical Society, January 17, the following officers were elected president, Dr Henry D Jump, vice president, Dr Moses Behrend, associate vice presidents Drs Mitchell P Warmuth Andrew Callahan, Louis E Barlow, Samuel McClary III, George E Levis Robert N Downs, Jr, and Aaron Bray secretary, Dr William S Ray, and treasurer, Dr Edward A Shumway

Public Lecture Course for Women—The lectures during February in the public lecture course given by the faculty of the Women's Medical College of Pennsylvania will be as follows

February 7 Principles of Nutrition Dr Martha Tracy
February 14 Food and Efficiency," Dr Martha Tracy
February 21 *Health Problems of Girls and Women,' Dr Ella B* Everitt
February 28 Social Diseases, Dr Frances C Van Gasken

Personal—William Curtis Farabee, curator of the American Section of the University of Pennsylvania Museum who recently returned after three years of exploration in the Amazon Valley was awarded the Elisha Kent Kane Medal by the Geographical Society of Philadelphia, January 19——Dr Frank C Abbott, who recently returned after fourteen months on the western war front delivered an address before the Ethical Culture Society, January 14, on War Experiences in Europe" Dr Abbott expects to return shortly——Dr Francis V Gowen has returned after several months as head surgeon in a hospital at Bretigny-sur Orge, France

WASHINGTON

Hospital Fire—Fire in St Luke's Hospital, Spokane, January 21, caused damage estimated at $50,000

Personal—Dr Edward A Rich has been appointed health officer of Tacoma and Dr Jonathan E Henry has been continued as city chemist and bacteriologist

New Officers—At the annual meeting of the Spokane County Medical Society, January 11 the following officers were elected president, Dr Herman P Marshall, vice presidents, Drs Peter Reid Rufus I Newell and Arthur E Johnson, secretary Dr William Sullivan and treasurer, Dr Alexander R Lundgren

WEST VIRGINIA

Paralysis Epidemic Checked—The epidemic of infantile paralysis at Elkins has apparently been checked There have been seventeen cases reported, with two deaths

Society Activities—On February 2, the Ohio County Medical Society Wheeling held a joint meeting with the board of education of Wheeling, at which Dr Edwin A Peterson, in charge of the medical department inspection and physical education in Cleveland delivered an address

Epidemic of Disease—Dr Samuel L Jepson, commissioner of health has issued an order suspending the quarantine against the city of Elkins, where infantile paralysis has been prevalent——On account of the presence of infantile paralysis in Fairmont, the Marion County Medical Association has recommended that all schools, except the State Normal School, be closed, and that children under 16 years of age be not allowed to attend public gatherings

WISCONSIN

Personal—Dr Arthur S Loevenhart of the University of Wisconsin has been under treatment in a hospital for an attack of nephritic colic

Smallpox—The Mammoth Paint Creek Construction Camp, where 500 men were employed, was suspended January 19, owing to the outbreak of smallpox at Camp Wisota

Milwaukee Physicians Elect New Officers—At the annual meeting of the Milwaukee Medical Society, January 9, the following officers were elected president, Dr Daniel Hopkinson, vice presidents, Drs George A Carhart and Alfred L Kastner, secretary, Dr Oscar Lotz, and treasurer, Dr Joseph P McMahon

Hospital Notes—The state board of control has endorsed the Onalaska site for the proposed $50,000 La Crosse County Tuberculosis Sanatorium——The Waukesha County Board has purchased, for $16,500, a site near Pewaukee for a tuberculosis sanatorium——St Francis' Hospital, La Crosse, at a cost of $90,000, has added to its building two new wings three stories in height The entire hospital has been remodeled

CANADA

Provincial Supply of Antitoxin—The Provincial Board of Health for Ontario will supply diphtheria and tetanus antitoxin, antimeningitis serum, smallpox vaccine and Pasteur preventive treatment for rabies, and mixed typhoid and paratyphoid vaccine free to the public all over the province The aggregate cost for the year will be $40,000, or about one fourth of the cost under commercial conditions All these products except typhoid vaccine are obtained from the University of Toronto

Personal—Surg-Gen Carleton Jones will shortly relinquish his position as director of the medical services for Canada and become inspector-general between Canada, Great Britain and France He will be succeeded by Col Gilbert Lafayette Foster, formerly assistant director of medical services in the Toronto Military District——Dr Walter W White, ex-president of the New Brunswick Medical Society, was given a dinner by members of the profession in St John N B on his fifty-fourth birthday——Dr J T Boyd, superintendent of the Kingston (Ont) General Hospital, has resigned owing to ill health——In the new cabinet of the British Columbia government two doctors are included Dr James H King minister of public work and Dr John D MacLean, Provincial Secretary and Minister of Education

GENERAL

Warren Prize Awarded—The Warren triennial prize for 1916, amounting to $500 has been awarded to D Noel Paton Glasgow Scotland, for his essay entitled "The Parathyroids"

Sale of Anhalonium to be Regulated—The Senate passed a bill, January 25, to amend the Harrison Narcotic Law to cover anhalonium mescale or muscale buttons, and pellote. The bill now goes to the House for action

Tri-State Association to Meet—The nineteenth annual session of the Tri-State Medical Association of the Carolinas and Virginia will be held in Durham N C February 21 and 22, under the presidency of Dr J Allison Hodges, Richmond, Va

Industrial Hygiene Standards—Surg Joseph W Schereschewsky U S P H S in charge of the field work for occupational diseases, has been making an investigation of the health conditions of steel workers in Pittsburgh to provide the government with information for minimum standards of industrial hygiene

Reinstatement Sought—The reinstatement of Dr Bert R Huntington as first lieutenant, M C, U S Army, is sought through special legislation, the United States Senate having passed a bill for that purpose, January 25 Dr Huntington was examined for promotion to a captaincy in 1914, but the board made an adverse report and he was therefore discharged from the army, March 24, 1914

Prize Offered by Industrial Medical Association—The American Association of Industrial Physicians and Surgeons offers a prize of $100 for the best thesis on any subject relating to industrial medicine and surgery by any undergraduate medical student of the United States The thesis must not contain more than 5,000 words and must be in the hands of Dr Harry E Mock 122 South Michigan Avenue Chicago, secretary of the association, on or before May 1, 1917

The American Journal of Syphilis—A new quarterly publication, the *American Journal of Syphilis,* has just issued its first number It is a pretentious journal of 260 pages, with an elaborate staff of editors and editorial collaborators, about 100 of them The cover page bears an appropriate statement by Sir William Osler

> Know syphilis in all its manifestations and relations and all other things clinical will be added unto you

Several of the articles are excellently illustrated, and a symposium of three papers is devoted to syphilis of the stomach The social side of the subject is not neglected, as evidenced by an article by Dr William Allen Pusey on the "Sanitary Attack Upon Syphilis," and one by Dr Henry H Hazen on "Teaching of Syphilis"

Bequests and Donations—The following bequests and donations have recently been announced

For the establishment of a home for convalescents at Brewster, N Y, $75 000 by the will of Mrs Arietta Crane Reed

St. Peter s Hospital Brooklyn $5,000, by the will of Ellen McAree

Columbia University New York, for the endowment fund of the Sloane Hospital for Women $75,000, from Mrs William Douglas Sloane

Associated Charities of Newburyport, Mass, the income from $50 000 and the Anna Jaques Hospital Newburyport, the income from $100 000 for the support and maintenance of the antituberculosis department, by the will of Julia M Mosly, Newburyport

Misericordia Hospital, Philadelphia, a contingent bequest of more than $4,000 from the estate of Mary E Grandle

Personal—Passed Assistant Surgeon John B Kaufman U S N, lately in charge of the hospital school of instruction at Newport News, Va, has been placed in charge of the hospital school to be established at Great Lakes Ill——Senior Surgeon Henry R Carter assistant surgeon general, U S P H S, and head of the Malaria Investigation Bureau has gone to Colleton County, S C, to study the malaria conditions in Broxton Township——Sanitary Engineer William D Wrightson, U S P H S, head of the mosquito campaign in Baltimore has accepted a position as superintendent of the construction of the Capitol Filterage Plant to be built in Lima Peru by the Peruvian government, and has sailed for his new post of duty

Typhoid Death Claims Settled—The Illinois Industrial Board has completed the settlement of fourteen of the eighteen death claims against the Elgin National Watch Company as a result of the recent typhoid epidemic among its employees This epidemic, amounting to over 100 cases of typhoid, was due to the contamination of the drinking water furnished employees The settlements made so far aggregate over $30,000, or an average of a little more than $2,000 each The four remaining claims will probably be settled during the next month In addition to the settlement of these death claims, the Elgin National Watch Company has voluntarily paid over $55,000 for medical and hospital attendance in an effort to control the typhoid epidemic The case is an important one as tending to establish the principle that typhoid fever is under some conditions, a disease consequent on occupation

National Leprosarium Bill Passes Senate—The bill providing for a national hospital for lepers has been discussed in THE JOURNAL repeatedly during the past year This bill simultaneously introduced in the House and Senate passed the House, May 15, 1916 It appropriated $250,000 for a national home for lepers, either on a site acquired by purchase or on any abandoned government reservation suitable for the purpose, the hospital to be under the regulation of the surgeon-general of the U S Public Health Service and to be for the care and treatment of any person afflicted with leprosy who presents himself voluntarily, or for any who may be apprehended under the U S Quarantine Acts or for any one consigned to the home by the proper health authorities of any state January 25, the bill was called up on the calendar in the Senate As passed by the House, the bill provided an addition to the pay of any medical officers detailed for service in the leper hospital of one half of their regular pay, in the Senate bill the additional pay was one quarter Senator Ransdell of Louisiana, chairman of the Senate Committee on Public Health and National Quarantine, in order to expedite the passage of the bill, moved to substitute the House bill for the Senate bill and secured its passage by unanimous consent.

WAR NOTES

Praise for American Ambulance Men—In an official comendation of the Second American Automobile Ambulance Section on duty in France Robert MacCreary, East Aurora, N Y, and Marcellus Wild, Rochester, N Y, have been named 'for their really exceptional devotion to duty" H C Hoskier and Marcel du Casse, New York, and L H Northrop Winnipeg, Man, received individual mention entitling them to the *Croix de Guerre*

Contributions to Expeditions Committee Fund—Hon Herman A Metz, Cleveland, has contributed $20 000 to the American Physicians Expeditions Committee

Unit Sails for England—The following physicians sailed, January 20, on the *New York* for service at hospitals in England and base hospitals in France Drs James V Ricci, Providence R I, Jerome F Potts, Washington, D C, William M Findley, New York, Frederick A Simonds Wakefield, Mass, J Franklin Harvey, Boston, Charles Curtis Allen Topeka, Kan, Leo Thomas Kewer Waverley, Mass, Carl Edwin Allison Wakefield, Mass, Charles F Gormly Providence R I, William H Mackay, Worcester, Mass, and Audley C Sanders Boston

FOREIGN

Cholera and Typhus in Palestine—The Women's Zionist Organization of New York announces that cholera and typhus have claimed so many victims among physicians in Palestine that few medical men remain on duty The organization asks $75 000 for the equipment and maintenance of a medical unit for one year

New Medical Era for China—President Harry Pratt Judson of the University of Chicago in an address before the World Problem Institute of the University of Chicago, January 8 stated that it is proposed that a medical training school be erected in Peking Around this school a chain of hospitals will be established A second school will be organized at Shanghai Both of these institutions are to be financed by the Rockefeller Foundation

Meetings of Internists in Europe—The ninth quadrennial Scandinavian congress for internal medicine was to have been held in Finland this spring but the war prevents Arrangements have now been made for the meeting to be held at Copenhagen in August 1917 The subjects appointed for discussion are Importance of Dieting in Treatment of Insufficiency of the Heart and Kidneys," and "Neurasthenia in Relation to Psychopathic Conditions" V Scheel, Bispebjaerg Hospital Copenhagen, is the secretary——The twenty-third annual meeting of the German internists is planned to convene at Wiesbaden in the coming April The main addresses announced are on 'Nutrition in War," "The Constitution as a Cause of Disease," and "The Rarer Infectious Diseases Encountered During the War" W Weintraud, Rosselstrasse 20 Wiesbaden is the secretary The announcement of this meeting specifies that communications for it will not be accepted if their essential content has already been published

Epidemic of Malignant Malaria in Mexico—The *Bulletin* of the Mexican National Board of Health states that two health officers were sent to Tehuantepec, as yellow fever was said to be prevailing there, many dying from a sickness with much vomiting of blood and hemorrhagic stools They found the trouble to be malignant malaria the parasites of the tertian phase numerous in the blood Isolation was practically impossible as about two thirds of the 10,752 inhabitants of the town were either sick or carriers, and practically all the special mosquitoes were infected Brigades were formed to aid in fighting the malaria, pools were oiled and twenty-eight houses fumigated The report covers the first sixteen days of the work, 426 sick were found and there were 180 deaths from the disease The scarcity of quinin made it impossible to treat all the sick and there was none for preventive use Efforts were promptly made to enlighten the public as to the epidemic and the necessity for proper treatment In some of the cases the measures that had been previously applied were evidently responsible for some of the peculiar manifestations of the disease, no one thinking of giving quinin, as malaria had not been suspected

The "Epidemics" Gold Medal for Landouzy of Paris—The *medaille d or des epidemies* has been awarded by the French government to Professor Landouzy for his long and ceaseless study of tuberculosis and means to combat it He it was who first established the existence of tuberculosis in very young infants which had been previously denied His conception of typhobacillosis" threw light on a hitherto unsuspected domain of the disease and enlarged the field of acute forms of the disease It was he, also, who revealed the tuberculous nature of pleurisy *a frigore* which upset the traditions as to the necessity of the tubercle for the assumption of tuberculosis He also inaugurated, in 1885, the new movement for social prophylaxis which developed from the old limited conception of "public health" In October, 1915, he took the lead in demanding and organizing measures for the detection and care of tuberculous soldiers -The state in awarding this medal to Landouzy aimed to emphasize in the eyes of the general public the epidemic character of tuberculosis which, French writers say, inaugurates a new era The 1913 statistics for France show a total of 18 552 deaths from all other epidemic diseases, outside of tuberculosis, and of 84,443 deaths from tuberculosis alone During the cholera epidemics, as late as 1884, the death rate from this disease was 4 4 per ten thousand inhabitants, from typhoid in 1913 it was 0 9, from diphtheria 0 63, while from tuberculosis, the death rate was 21 3 10,000

PARIS LETTER

Paris, Jan 4, 1917

The War

SYPHILIS AFTER TWO YEARS OF WAR

At the session preceding the last one, held by the Academie de médecine, Dr Gaucher, clinical professor of cutaneous diseases and syphilis of the Faculte de medecine de Paris, and Dr Bizard made an interesting report on this subject Whereas, before the war, there were, in round numbers, 300 cases of recently contracted syphilis among 3,000 patients treated at the St Louis Hospital clinic (one in ten), during the first sixteen months of the war, 800 cases of syphilis were found among 5,000 patients (one in six), in the eight months following there were 600 syphilitics among 2,300 patients (one in four) Therefore, while during the first sixteen months of the war syphilis increased over 33 per cent (almost 50 per cent), during the following eight months it increased over 50 per cent (almost 67 per cent) Commenting on this remarkable increase, Drs Gaucher and Bizard insist that there were originally many unknown cases of syphilis This fact, they believe, demonstrates the necessity of giving students more thorough instruction on syphilis In fact, students should receive several months of special training in the study of this disease Dr Vaillard, general medical inspector of the military health service, has proposed that the authorities be invited to take the necessary measures to prevent the development of syphilis Following this proposal, the Academie de medecine appointed a commission composed of Drs Gaucher Achard, Vaillard, Pinard and Kirmisson to draft a petition asking the government to enforce this resolution

SMALLPOX VACCINATION BY ARMY PHYSICIANS

M Justin Godart, undersecretary of state of the military health service, has recommended to the regional directors in the service that (1) all soldiers be examined with the view of vaccinating or revaccinating all those who had escaped vaccination, (2) all employees in public or private manufactories operating for national defense be revaccinated with the least possible delay and (3) the medical corps of the army be placed at the disposition of the civil authorities and charged to proceed with the legal revaccination of schoolchildren who have attained the age of 11 years

FOR WAR CRIPPLES

At the suggestion of the Belgian government, cooperating with the French government, a conference of the allies is to be held at Paris, March 6, 1917, to consider the needs of those crippled in the war their reeducation, employment, economic interests, protection, etc The organizers of this movement appeal to all specialists, soliciting cooperation The general secretary may be addressed at "rue de Bocage de Bleville, No 1, Havre" The national office for the wounded at "quai d'Orsay, 97, Paris," will furnish all necessary information to those interested

Are there Carriers of Tetanus Bacilli?

In a report to the Societe de chirurgie de Paris Dr Colombino of Turin answers this question in the affirmative In making a casual bacteriologic examination of infected wounds in patients who had been given an antitetanic serum injection and who had never even shown any symptoms of tetanus, he discovered not only the tetanus spores, as Berard and Lumiere had already observed, but even the bacilli Therefore, Colombino concludes that in the centers in which the wounded are treated, every patient, from the point of view of a tetanus infection, was a menace to his neighbor, and that, consequently, it was unsafe to operate in any manner on a patient whether infected with tetanus or not, without giving him a preventive, antitetanic serum injection This opinion gave rise to an interesting discussion Professor Legueu found Colombino's conclusion somewhat overdrawn He believes that the antitetanic serum injection should be given only under certain conditions and in certain centers where tetanus occurs more frequently or where its occurrence is more to be feared According to Dr Pierre Delbet, clinical professor of surgery at the Faculte de medecine de Paris, the danger to which the carriers of tetanus bacilli subject the other patients is evidently not comparable with that of scarlet fever or diphtheria, but, nevertheless, this danger is real and similar to that which is caused by those who actually have tetanus Dr Broca, assistant professor at the Faculte de medecine de Paris, who, for two years, has operated daily on patients who had not been given preventive injections, has never had a single case of tetanus Dr Routier, on the other hand, for almost one year never performed even a minor operation without giving the patient on the eve, or at least on the morning of the day of operation an antitetanic serum injection He claims never to have had a case of operative tetanus Dr Tuffier, assistant professor at the Faculté de medecine de Paris, does not accept this practice, which he believes applies only when there is a case of tetanus in the service Dr Rochard is of the same opinion Dr Quenu believes that this is a question which needs to be studied further, because at present there are not enough facts to solve it

Oculocardiac Reflex and Subjective Symptoms of Trephined Patients

Dr Paul Sainton, physician at the hospitals of Paris, has drawn the attention of the Academie de medecine to the fact that in trephined patients there is a disturbance of the functional equilibrium which exists normally between the antagonistic, pneumogastric and sympathetic systems Proof of this is the frequency of modifications of the oculocardiac reflexes which denote at times a hyperexcitability of the autonomous system and at others a hyperexcitability of the grand sympathetic system They are comparable to those which have been described as existing in exophthalmic goiter Testing the oculocardiac reflexes should therefore take its place among other procedures which make for the control of the subjective symptoms of the trephined

Formation of a Franco-Russian Medical Committee

This committee has just been formed with a view of attracting to the schools of medicine and pharmacy of France the greatest possible number of Russian students and physicians, to send French students and physicians into Russia on scientific missions, to invite similar Russian missions to France, and to create Russian medical centers in the university cities of France to serve as medicocommercial centers The honorary president of this medicochirurgical committee is Dr Charles Richet, professor at the Faculte de medecine de Paris The acting president is Professor Blanchard and the general secretary is Dr Roubinovitch, physician at the Hospice de Bicetre

Personal

At a recent meeting of the Academie de medecine Prof George Hayem was elected president for 1918

Death of Dr Edward Hirtz

Dr Hirtz, physician at the hospitals of Paris and vice president of the Societe de therapeutique, recently succumbed to a cardiac affection He had distinguished himself by his work on the circulatory system and its therapy

BERLIN LETTER

Berlin, Nov 20, 1916

Tuberculosis and the War

By resorting to proper hygienic and prophylactic measures in the fight against tuberculosis, the authorities have succeeded in reducing the number of cases of tuberculosis occurring in the army in times of peace The most effective measure in this campaign has been the prompt isolation of every suspicious case The incidence of tuberculosis in 1882 was 2 2 per thousand, whereas in 1910 it was only 1 3 per thousand The same condition existed in the Austro Hungarian army Tuberculosis incidence was also greater in the Russian and English armies than in the armies of the central powers Since the beginning of the war it has manifestly been impossible to carry out the measures which resulted in this splendid showing in the German army Persons with a predisposition to tuberculosis naturally could not be excluded from service Furthermore, many of the volunteers withheld the information that they had had pulmonary disease, nor could these cases be detected by the medical examiners, who were compelled to make hurried examinations The need for men made it necessary to accept for enlistment persons with healed or inactive tuberculosis, but many of these have made excellent soldiers, not only withstanding successfully the exacting demands of military service on their constitutional resistance, but even gaining in health and strength The number of new cases of tuberculosis developing in the army is much smaller than was at first expected, notwithstanding the unusually severe conditions under which the soldiers live The clinical picture of these cases does not differ from that of tuberculosis occurring during times of peace As to the prognosis of these cases of war or campaign tuberculosis, as they have been designated, there is some difference of opinion Some observers report having seen severe, rapidly progressing cases, while others claim that many of these patients make a speedy recovery under appropriate hospital treatment

TRAUMA AND TUBERCULOSIS

Much valuable information on the relationship of trauma to tuberculosis may be expected, although, according to present indications, few cases of tuberculosis have developed as the result of trauma in general and lung injuries in particular The lighting up of old or latent cases and the progression of mild cases is not uncommon, however In many instances old cases remained wholly unaffected Moritz investigated cases of gunshot wounds of the chest at various special hospitals, and found a direct etiologic relationship between injury and tuberculosis in nine cases In thirty-six cases the disease was undoubtedly made worse These figures surely are not alarming when one remembers that the cases of lung injury in this war are numerous During the Franco-Prussian war very few cases of pulmonary tuberculosis developed as the result of chest wounds The typhoid prophylactic vaccination, it is believed, also activates pulmonary tuberculosis, although such cases are merely isolated instances Observations made on this subject are very instructive. It is agreed that in a large percentage of cases the original diagnosis of tuberculosis was wrong Fraenkel excluded an active tuberculosis in 60 per cent of the cases, de la Camp in 30 per cent, Blumel of Halle in 80 per cent, and this in the face of the fact that the original diagnosis was made, not after a single examination, but after observations extending sometimes over months and carried on in an institution The reason for these errors in diagnosis, Fraenkel believes, lies in the fact that too great value is placed on relatively insignificant findings A laudable desire to recognize tuberculosis as early as possible has led many physicians to regard indefinite physical findings or an incomplete clinical history as a sufficient basis for a diagnosis of pulmonary tuberculosis Fraenkel says that the diagnosis of pulmonary tuberculosis should be made only when the tubercle bacillus is unquestionably found in the sputum or when a typical roentgenogram is obtained He is convinced that the roentgenogram is never negative in a frank, open case of tuberculosis, or in any case of closed tuberculosis manifesting clinical symptoms All other evidence Fraenkel regards as unsafe, stating that only an overwhelmingly large number of such signs and symptoms should serve as a basis for a positive diagnosis of tuberculosis Goldscheider, de la Camp, Rieder, Scholz and others emphasize the absolute necessity of a Roentgen examination of the chest in arriving at a diagnosis of pulmonary tuberculosis Of course, it is needless to state that a correct interpretation of the roentgenogram must be made Goldscheider says that a shadow in the roentgenogram is not indicative of an active tuberculosis, nor does it justify exemption from military service or referring the individual to a hospital for treatment.

It is well to mention here something that occurred in Switzerland The Swiss military insurance organization was confronted by the problem whether a case of tuberculosis making its appearance during military service was to be regarded as a disease incurred while in service, or as a disease having existed prior to enlistment The majority of physicians today agree with the teaching of Behring and Romer that infection with the tubercle bacillus usually occurs during childhood and that clinical manifestations do not appear until many years afterward in the form of metastasis, and that an exogenous infection of an adult is in general, without significance A commission of Swiss physicians came to the conclusion that pulmonary tuberculosis in these cases was not to be regarded as a disease of military service, but that it had existed previously Not a single case could be found in which it was probable that the infection occurred after the age of 20 Therefore, the military insurance commission felt itself justified in refusing to give an indemnity to these tuberculosis soldiers although, for humanitarian reasons, it was willing to treat these men until recovery ensued Stahelin was strongly opposed to these views He referred to the frequent changes of opinion among physicians as to the exact nature of these cases, and believed that the commission had confused the terms 'infection" and 'illness" If it is true, he said that over 90 per cent of all persons become infected with the tubercle bacillus in their youth, whereas only relatively few manifest any symptoms of pulmonary disease, it is evident that while infection with the tubercle bacillus may have occurred, it was by no means the main etiologic factor of the subsequent illness Grau agreed with Stahelin, and suggested that too firm a belief in the correctness of the teaching of Behring and Romer might prove to be a stumbling block in the effective campaign against tuberculosis

DIAGNOSIS

Little has been added to means of diagnosis Tachau and Mickel have investigated the matter of temperature elevation following exercises and found that the variation in the well and the sick did not consist so much in the absolute increase of the temperature as in the rapidity of its fall In the normal person the temperature falls to normal within half an hour but not in the sick The diagnostic value of this finding is strongly influenced by the fact that other diseases than tuberculosis show such pathologic reactions The opinions as to the diagnostic value of the tuberculin tests are still varied De la Camp's observation is of interest He found that as the result of vaccinations the susceptibility to the tuberculin was altered so that the usual reaction failed to appear Hochhaus found that Pirquet's reaction was negative in the case of many soldiers when one really would have expected a positive reaction

The manysidedness of the clinical picture of pulmonary tuberculosis is laid to the various groupings made of these cases The division made by Turban and Gerhardt is based on the progress of the tuberculous process So far, however as the course of the disease is concerned, the nature of the anatomic process is of greater importance than its spread The Fraenkel-Albrecht classification is made on this basis They recognize the cirrhotic, tubercular and pneumonic processes with combinations of cirrhotic-tubercular and tubercular-pneumonic cases The cirrhotic and tubercular-cirrhotic cases are regarded as benignant because they result in scar formation, the other cases are looked on as being malignant because they are progressive The clinical classification of individual types should be made only after every means of diagnosis has been resorted to, a careful review made of the clinical history, a thorough physical examination, a Roentgen examination, and after noting the course of the temperature and the fluctuations in body weight

MILITARY FITNESS

It is impossible to lay down any rules that can be made to apply to military fitness The individual case must be judged on its own merits, and in the end all such persons affected with tuberculosis must be regarded as fit for military service if they have sufficient physical endurance Open cases of tuberculosis, or such as give evidence of an active process must be exempt from military service On the other hand, old, inactive cirrhotic forms can, under certain conditions, be regarded as fit for all kinds of military service This decision will be justified when the individual concerned has withstood all sorts of service successfully, and when he is sent to the hospital, not because of his tuberculosis, but because of some other illness or as the result of wounds

LONDON LETTER

LONDON, Jan 6, 1917

The War

MEDICAL SPECIMENS FROM THE WAR

In March 1915, the war office constituted a committee to compile a medical history of the war, and the director-general of Army Medical Services became its president, and the secretary of the Medical Research Committee its secretary The two scientific forces were united in one body One of the objects of the committee was to collect from all the military hospitals specimens of interest and permanent value These specimens are of great interest and it was felt that at all costs they must be preserved The collection was begun and the number of specimens received soon mounted up As it was found impossible to carry out the original idea and store the specimens at the Royal Army Medical College, the council of the Royal College of Surgeons decided to place the workrooms and storerooms of the museum at the disposal of the Army Medical Service and to preserve, classify and register all specimens forwarded from military hospitals The war office issued a memorandum telling army surgeons to forward specimens of an interesting and instructive type In 1916 Major T R Elliott was placed in charge of the collection and transmission of these specimens from the pathologic laboratories attached to the base hospitals in France The specimens at the end of 1916 numbered 1,100 They have been carefully stored under the direction of Prof Arthur

Keith, curator of the College of Surgeons Museum In this way a national collection has been built up In order that it may be made of immediate use it has been decided to place the specimens on exhibition and the work of selection has been entrusted to Professor Shattock, pathologic curator of the Royal College of Surgeons When the work of arrangement and correlation is completed, the medical profession, and thereby the people of this country, whether in the army or in civil life, will begin to enjoy the benefits of a singularly clearsighted policy

The Campaign Against Venereal Diseases

The action of the government in providing centers for the free diagnosis and treatment of venereal diseases has been described in previous letters to The Journal The subject continues to receive great attention in the press, and the grave consequences of these diseases are discussed with a freedom which would have seemed impossible a few years ago The National Council for Combating Venereal Diseases has issued a report on its recent activities It points out that on the publication of the Report of the Royal Commission on Venereal Diseases (described in a previous letter), the Council presented a memorial to the Local Government Board urging that financial support should immediately be given by the government to enable treatment centers to be established throughout the country This request being granted steps were then taken to focus public attention on the urgency of the problem by means of a series of conferences in several large towns The most important one was that convened by the lord mayor of London and at it certain fresh legislation was foreshadowed in the home secretary's speech At his suggestion, recommendations were prepared by the national council and submitted to him for consideration These recommendations included (1) the suppression of advertisements by quacks and (2) making the transmission of venereal disease by a person who was aware that he was in an infectious condition a criminal offense One of the earliest activities of the council consisted in undertaking, with the consent and approval of the war office the provision of lectures to troops on the subject of venereal diseases A syllabus was drawn up and a panel of medical men formed who were willing and able to lecture The lecture comprises a description of the diseases and their effects, the urgent need for thorough and early treatment a statement of the dangers of quackery and concealment and an explanation of the modes of infection and of the advantages of continence During the last two years nearly a million men have been addressed on these lines The lectures have been invariably well received, and many letters testifying to their utility have reached the council from officers in high command This work is still in progress, and it has recently been extended, at the desire of the director-general of the army medical service, to include a lecture to each new class of cadets at all the officer cadet schools, so that every new officer may receive the information necessary to enable him to instruct the men under his command The council has also assisted in furthering arrangements for providing facilities for early treatment for soldiers on leave in London, so that there should be no delay in commencing treatment owing to their temporary absence from their depots The rules of all societies approved under the national insurance act include one depriving members of sickness benefit if their incapacity is the result of "*misconduct*" The result is that members suffering from venereal diseases are in many cases unable to obtain this benefit The council came to the conclusion that this rule was likely to exert influence adverse to the campaign against these diseases, by discouraging such members from seeking early and efficient treatment Representations to this effect were accordingly made to the principal societies, pointing out, in addition, that the abolition of the "misconduct rule" as regards venereal diseases would probably be of financial benefit to them in the long run, by relieving their funds from the strain of paying sickness and disablement benefit for the many cases of sickness and disablement arising from neglected venereal disease As a result, resolutions giving effect to the principle have been passed by conferences representing the great majority of insured persons

The national council is preparing to undertake a widespread propaganda Arrangements have been made to hold special training classes for speakers A certain number of men and women will be engaged for whole time services for the national council, and will work under the auspices of the county and town health officers in cordial cooperation with existing social agencies in various parts of the country Arrangements have also been made to train local speakers and secure a panel of physicians who are willing to speak on the medical aspect of the question, and so supplement the teaching of social prevention given by the lay speakers A number of conferences have already been arranged between municipal, medical and hospital authorities in many centers

The most extreme development of the campaign is a proposal submitted to the home secretary by the Hammersmith borough council, which is nothing less than a by-law to enforce chastity It may be necessary to explain that a by-law is a regulation made by a local authority for its own district, with the sanction of the government The council suggests that a man who, knowing the injury he is likely to inflict on himself, his wife and children, and the community generally, consorts with prostitutes deserves to be regarded as no less criminal than the keeper of a disorderly house, and if found in such company or on disorderly premises, he should be made liable to prosecution

The Medical Service in the Somme Battle

The battle of the Somme which lasted five months, is the greatest battle on record The report on it by the commander of the British expeditionary force in France Sir Douglas Haig, has just been published Referring to the medical arrangements, he states that the losses entailed by the constant fighting threw a specially heavy strain on the medical services This was met with the greatest zeal and efficiency The gallantry and devotion with which officers and men of the regimental medical service and field ambulance discharged their duties is shown by the large number of the Royal Army Medical Corps and Medical Corps of the Dominions who have fallen in the field The work of the medical services behind the front has been no less arduous The untiring professional zeal and marked ability of the surgical specialists and consulting surgeons, combined with the skill and devotion of the medical and nursing staffs, both at the casualty clearing stations in the field and the stationary and general hospitals at the base, have been beyond praise Immense help was rendered by the British Red Cross and the Army Medical Corps in their work The health of the troops has been most satisfactory and there was almost a complete absence of wastage due to disease of a preventable nature

On the use of gas the dispatch contains the following paragraph

> The employment by the enemy of gas and of liquid flame as weapons of offense compelled us not only to discover ways to protect our troops from their effects but also to devise means to make use of the same instruments of destruction Great fertility of invention has been shown and very great credit is due to the special personnel employed for the rapidity and success with which these new arms have been developed and perfected and for the very great devotion to duty they have displayed in a difficult and dangerous service The army owes its thanks to the chemists physiologists and physicians of the highest rank who devoted their energies to enabling us to surpass the enemy in the use of a means of warfare which took the civilized world by surprise

Physicians to Charge Higher Fees

Since the war began, the price of everything has greatly increased, and therefore the cost of living is augmented So far most physicians have not increased their charges Newcastle division of the British Medical Association ever, has decided to increase medical fees from 15 to cent, owing to the increased cost of living drugs, e

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Marriages

Isaac Newton Ratchford M D, Stockt Clarissa Merganten of San Francisco, De

Arthur Francis Grove, M D, to Miss Uline, both of Dell Rapids, S D, December

Francis Dowling, M D, Cincinnati to Phillips of Fort Thomas, Ky, January 19

Del Mar Akin, M D, Stratton Park, Colo Foster of Colorado Springs, December 7

Walter Maurice Lacey, M D, to Miss Marguer both of Cheyenne, Wyo, December 27

Louis Monroe Tomlinson, M D, Harveyville, Kan, to Miss Vinnie S Grissinger, September 28

Julius Napoleon Hill M D, to Miss Kathryn Bayliss both of Murphy, N C, January 4

Julius E Lackner, M D, Chicago, to Miss Florence Simon of Minneapolis, January 25

Deaths

Leopold Frederick William Haas, M D, New York, College of Physicians and Surgeons in the City of New York, 1898, aged 42, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of New York, chief diagnostician of the Bronx Borough Board of Health, attending obstetrician to the Union Hospital, and attending physician to the Home of the Friendless, died in the Presbyterian Hospital, New York, January 18

William Russell Allison, M D, Peoria, Ill , Rush Medical College, 1886, aged 53 a Fellow of the American Medical Association, for several years secretary and once president of the Peoria City Medical Society, for ten years health commissioner of Peoria and once alderman, for five years secretary of the Proctor Hospital Medical Staff, and at the time of his death president, died in his office, January 12, from angina pectoris

Frederick Miller Corwin, M D, Bayonne, N J , New York University, New York, 1881, aged 60, a Fellow of the American Medical Association local surgeon of the Central Railroad of New Jersey, president of the medical board of the Bayonne Hospital and a member of the staff of the East Long Island Hospital, chief medical inspector of the board of education of Bayonne, died at his home, January 16, from heart disease

Frederick W Kienzle, M D, Lynn, Ind , Medical College of Indiana, Indianapolis, 1902, aged 39, formerly a member of the Indiana State Medical Association, died at the home of his mother in Greensfork Ind January 15, from the effects of an incised wound of the throat, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health

Robert Henry Herkimer, M D, Brooklyn, Long Island College Hospital, Brooklyn, 1892, aged 46, for twelve years chief medical inspector of the health department of Brooklyn formerly a member of the Medical Society of the State of New York, died at his home, January 16, from pneumonia

Charles L Kissling, M D, Milwaukee, Wis , University of Munich Bavaria 1886, aged 57, a Fellow of the American Medical Association a well known practitioner of Milwaukee, and for sixteen years a member of the board of education, died at his home, January 18, from heart disease

Thomas R Cave, M D, Manhattan, Kan , Medical College of Ohio Cincinnati, 1874, aged 64, a Fellow of the American Medical Association, a member of the Golden Belt Medical Society , one of the most prominent practitioners of northeastern Kansas, died at his home, January 22

John Wesley Chambers, M D, Baltimore College of Physicians and Surgeons, Baltimore, 1878, aged 64, a Fellow of the American Medical Association, professor of principles and practice of surgery and clinical surgery in his alma mater died at DuBois, Pa , January 21

William J W Kerr, M D, Corsicana Texas University of Nashville Tenn , 1870, aged 82 formerly a member of the State Medical Association of Texas surgeon in the Confederate service throughout the Civil War, died at his home November 12 from arteriosclerosis

Ward Slosson Gregory, M D, Colorado Springs, Colo , College of Physicians and Surgeons in the City of New York, 1903, aged 37, a Fellow of the American Medical Association, formerly of Norwalk, Conn , died at his home January 14, from tuberculosis

John C Cullen, M D, Anderson, Ind , Medical College of Ohio Cincinnati 1868, aged 79, assistant surgeon of the Sixteenth Indiana Volunteer Infantry during the Civil War, a member of the city council of Anderson in 1884, died at his home, January 17

Andrew Benjamin Knisley, M D, Buffalo, University of the Victoria College, Coburg, Ont , 1885 aged 58, formerly a Fellow of the American Medical Association a member of the Medical Society of the State of New York, died at his home, January 10

James Francis Ferry, M D, Cambridge, Mass , Harvard Medical School 1887, was instantly killed January 21 when the automobile in which he was riding was struck by a Boston and Maine freight train at a grade crossing at Still River station

Irving Drury Chaney, M D, Mount Airy, Md , University of Maryland Baltimore, 1906, aged 35, formerly a Fellow of the American Medical Association, a member of the Medical and Chirurgical Faculty of Maryland, died at Portland Manor, Md , January 18

Clarence Henry Leland, M D, Lowell, Mass , Hahnemann Medical College, Philadelphia, 1873, aged 68, for many years a member of the staff of the Lowell General Hospital, died at his home, January 15, from pneumonia

John Jay Crawford, M D, Coraopolis, Pa , Jefferson Medical College, 1882, Hahnemann Medical College, Chicago, 1884, aged 56, was almost instantly killed by the overturning of his automobile at McClarrens Mills, January 11

Karl Rogers, M D, Cleveland, Tenn , University of Nashville, Tenn , 1907, aged 34, formerly a member of the Tennessee State Medical Association, died in a sanitarium in Cleveland, January 3, from acute nephritis

George Sanson, M D, Ashcroft B C , University of the Victoria College, Coburg, Ont , 1886, aged 54, died at the Royal Victoria Hospital, Victoria, B C, September 4, after an operation for carcinoma

Anthony Keller, M D, Falls City, Neb , Jefferson Medical College 1883, aged 65, formerly a Fellow of the American Medical Association, died at his home, January 10, from cerebral hemorrhage

Roland Sumner Gove, M D, Sanford, Me , Bowdoin Medical School, Brunswick, Me , 1892, aged 46, a member of the Maine Medical Association, died at his home, December 18, from pneumonia

Stephen Augustus Pedrick, M D, Rowley Mass , Tufts College Medical School, Boston, 1895, aged 45, a member of the Massachusetts Medical Society, died at his home, December 28

Charles Wesley Brown, M D, Orland, Me , Medical School of Maine, Brunswick, 1877, New York University, New York, 1888, aged 67, died at his home, January 8, from acute gastritis

Eugene McIntyre Walker, M D, Sylvester, Ga , Medical College of Georgia Augusta, 1914, aged 28, died at the home of his parents in Tifton, Ga , December 30 from typhoid fever

John W Snider, M D, New Castle, Ohio, University of Wooster, Cleveland, 1878, aged 61, a member of the Ohio State Medical Association, died at his home about January 6

Townsend M Luce, St Louis (license Missouri, 1887), aged 78, for more than half a century a practitioner of Missouri, a Confederate veteran, died at his home, January 12

Allen A Barnett, M D, Jerseyville Ill , University of Louisville Ky , 1853, aged 86, formerly a member of the Illinois State Medical Society, died at his home, January 12

William Benjamin Yancey, M D, Atlanta, Ga , Georgia College of Eclectic Medicine and Surgery, Atlanta, 1895, aged 49, died at his home, January 3, from pneumonia

William Blackburn York, Chestnut Bluff, Tenn (license, Tennessee 1889), a practitioner since 1861, aged 76, a Confederate veteran, died at his home, January 3

William A Jones, M D, Colfax, La , Memphis (Tenn) Hospital Medical College 1888, aged 61, was found dead in his office, January 4 from heart disease

Leonard W Estabrook, M D, Springport, Ind , Rush Medical College, 1867, aged 82, a pioneer practitioner of Henry County, died at his home January 8

James N Crabb, M D, Chico, Calif , College of Physicians and Surgeons Keokuk Iowa 1878 aged 65, died at his home, January 4, from heart disease

James H Kimball, M D, Los Angeles, Hahnemann Medical College, Chicago 1880, aged 72, a veteran of the Civil War, died at his home, January 3

Thomas Morrison Burney, M D, Los Angeles, University of Pennsylvania, Philadelphia, 1913, aged 26, died at his home January 6 from tuberculosis

Virgil Andrew Dial, M D, Senath Mo , Vanderbilt University, Nashville, Tenn , 1915, aged 35, died at his home, January 7, from chronic nephritis

James Thomas Rushin, M D, Montgomery, Ala , University of Tennessee, Nashville, 1883, aged 52, died in Montgomery, January 6

William Ralph Fogarty, M D, Brooklyn, Long Island College Hospital 1912, aged 38, died at his home, January 5, from pneumonia

William Skiddy Taylor, M D, Pomona, N Y , Bellevue Hospital Medical College, 1881, died at his home, January 8

Albert T Webster, M D, Carrollton, Ky , Pulte M College, Cincinnati, 1899, aged 58, died at his home,

Association News

THE NEW YORK SESSION

The Local Committee on Arrangements, Headquarters and Meeting Places

The local Committee on Arrangements for the 1917 session to be held in New York City, June 4-8, has been constituted with Dr Wendell C Phillips, chairman, Dr Floyd M Crandall, secretary, and Dr Alexander Lambert, treasurer The following chairmen of subcommittees have been named

CHAIRMEN OF SUBCOMMITTEES

Finance	Dr Alexander Lambert
Registration	Dr Ramon Guiteras
Entertainment	Dr John S Thacher
Hotels	Dr Reginald H Sayre
Sections	Dr Willy Meyer
Scientific Exhibit	Dr Harlow Brooke
Commercial Exhibit	Dr Henry S Stearne
Press and Publicity	Dr George D Stewart
Golf	Dr Charlton Wallace

LOCAL COMMITTEE HEADQUARTERS

This committee has established headquarters at the Academy of Medicine Building, 17 West Forty-Third Street All communications to the local committee or any of its subcommittees should be mailed to that address

GENERAL HEADQUARTERS

The Registration Bureau the Scientific Exhibit and the Commercial Exhibit, together with the information bureau and the American Medical Association postoffice will be housed in the Hotel Astor, which will be General Headquarters

SECTION HEADQUARTERS

The section headquarters and meeting places are announced as follows

Practice of Medicine	Biltmore Supper Room
Surgery, General and Abdominal	Waldorf Astoria Grand Ball Room
Obstetrics Gynecology and Abdominal Surgery	Waldorf Astoria Astor Gallery
Ophthalmology	Astor North Ball Room
Laryngology, Otology and Rhinology	Astor East Ball Room
Diseases of Children	McAlpin Winter Garden
Pharmacology and Therapeutics	Manhattan
Pathology and Physiology	McAlpin Blue Room
Stomatology	Astor Yacht Room
Nervous and Mental Diseases	McAlpin, Roof Garden
Dermatology	Academy of Medicine Du Bois Hall
Preventive Medicine and Public Health	Biltmore Music Room
Genito Urinary Diseases	Waldorf Astoria Green Room
Orthopedic Surgery	Waldorf Astoria Assembly Hall
Gastro Enterology and Proctology	McAlpin Green Room

HOUSE OF DELEGATES

The House of Delegates will meet in the Academy of Medicine Building, convening at 10 o'clock, Monday morning, June 5

SCIENTIFIC ASSEMBLY

General Meeting—The opening meeting of the Scientific Assembly will be held in the Grand Ball Room of the Waldorf-Astoria, convening at 8 o'clock, Tuesday evening, June 5, instead of at 10 a m, as at previous sessions

Section Meetings—The section work will begin at 9 a m Wednesday, June 6 instead of at 2 o clock Tuesday afternoon, as heretofore The sections will hold two meetings, opening at 9 a m and at 2 p m, Wednesday, Thursday and Friday, June 6, 7 and 8, respectively, or until the programs of the several sections are completed

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

GLYCEROPHOSPHATE COMP AMPULS, 1 Cc, SQUIBB

Report of the Council on Pharmacy and Chemistry

"Glycerophosphate Comp Ampuls 1 Cc, Squibb" are claimed to contain, in each, sodium glycerophosphate 0 1 gm, strychnin cacodylate 0 0005 gm, and iron cacodylate 0 01 gm The Council refused recognition to "Glycerophosphate Comp Ampuls, 1 Cc Squibb' because the name did not indicate the potent ingredients and because the administration of a mixture of sodium glycerophosphate, strychnin cacodylate and iron cacodylate is irrational

The preceding statement was submitted to E R Squibb and Sons for consideration The firm replied

> we wish to explain that there has been a small demand for this product no doubt created by other manufacturers We have filled hitherto this demand as far as it came to us using the formula regularly supplied for years by other firms
>
> The name Glycerophosphate Comp to cover a product containing sodium glycerophosphate strychnine cacodylate and iron cacodylate seemed to us to be the best that could be devised under the circumstances It is absolutely impossible to mention all the ingredients in the name as it would give an unwieldy title In passing we might mention that the U S P and N F cover also by the word Compound the potent ingredients in many titles
>
> However the finding of the Council that the formula here in question is irrational must determine our action and we have in consequence decided to eliminate Glycerophosphate Comp Ampuls from our list dropping the article altogether

This cooperation in the work of the Council on Pharmacy and Chemistry is gratifying In passing the Council notes that the foregoing criticism of many Pharmacopeial and National Formulary titles is justified Many Pharmacopeial preparations have names which are not only non descriptive but actually misleading Such are compound powder of glycyrrhiza and compound syrup of figs, both of which owe their activity to senna, and acid camphor mixture and compound mixture of glycyrrhiza, which are *essentially* opium preparations If any of these preparations possess therapeutic value their names should be descriptive, as otherwise they violate a fundamental principle in the nomenclature of medicinal substances a principle for which the Council has contended and which is supported by both the medical and pharmaceutical professions as well as by manufacturers

BRINKLER, "FOOD EXPERT," ACQUITTED

After a trial lasting three weeks, and after twenty hours' deliberation by a jury, George H Brinkler, the self-styled 'food expert," was acquitted on January 16, at Washington D C, of the criminal charge of using the mails to defraud Brinkler was indicted on Aug 7, 1914, and a fraud order was issued against him by the postoffice department, Aug 19 1914 A full account of his methods was published in The Journal, Oct 3, 1914, in this department and the matter has been reprinted in the pamphlet "Medical Mail-Order Frauds'

Witnesses for Brinkler included an exponent of the treatment of disease by the vacuum process, an advocate of mechanotherapeutics, and a 'neuropath," and according to the Washington *Post* the attorney for the defense called "the leading dietetic experts of New York and Philadelphia to prove that the Brinkler theory is sound"

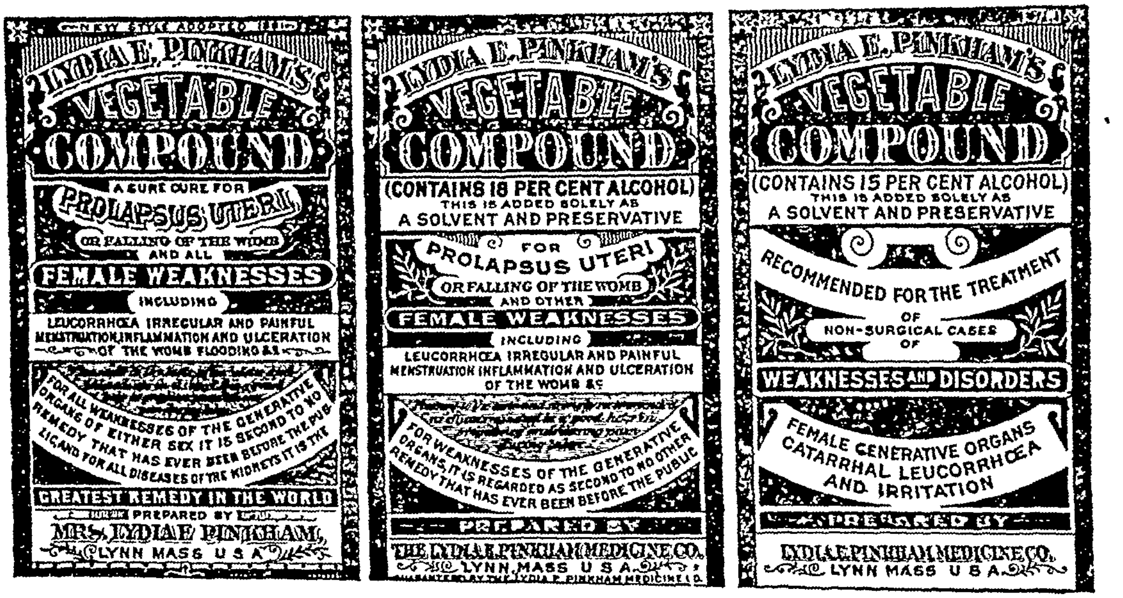
The unfortunate influence of this case on the public may be inferred from the impression sought to be conveyed by the Washington (D C) *Post,* which said

> War to the last ditch is going on at the present time between doctors licensed by state boards to practice according to old conservative rules of materia medica and the new practitioners who are more and more discarding drugs for what they contend is the natural methods of treating ailments, such as dieting, fasting, mental suggestion and the like

There are many practitioners in every city, but it is stated, this was the first big case against any of them

"Court officials agreed that no more difficult proposition ever confronted a jury, and its finding is regarded as a big victory for the advocates of all natural methods of treating diseases"

The "victory," however, can hardly be called a decisive one, since it took the jury twenty hours to return the verdict "not guilty" even after the defendant's best efforts to prove his innocence As a matter of fact the verdict is no evidence of the failure of the prosecution to prove the falsity of the defendant's therapeutic claims, for in order to sustain a conviction in such cases it is necessary for the prosecution to prove to the unanimous satisfaction of the jury not merely that the defendant's claims are false, but to prove also, beyond a reasonable doubt, that the defendant knew of their falsity at the time he made them The verdict is to be accepted therefore, as proving only that the prosecution did not succeed in convincing each one of the twelve jurors, beyond a reasonable doubt, that Brinkler's claims were false *and that Brinkler knew it*, and that with such knowledge he used the mails for the exploitation of such false claims for the purpose of obtaining money thereby


LYDIA E. PINKHAM'S
VEGETABLE
COMPOUND
A SURE CURE FOR
PROLAPSUS UTERI
OR FALLING OF THE WOMB
AND ALL
FEMALE WEAKNESSES
INCLUDING
LEUCORRHŒA IRREGULAR AND PAINFUL MENSTRUATION, INFLAMMATION AND ULCERATION OF THE WOMB FLOODING &c
FOR ALL WEAKNESSES OF THE GENERATIVE ORGANS OF EITHER SEX IT IS SECOND TO NO REMEDY THAT HAS EVER BEEN BEFORE THE PUBLIC, AND FOR ALL DISEASES OF THE KIDNEYS IT IS THE
GREATEST REMEDY IN THE WORLD
PREPARED BY
MRS. LYDIA E. PINKHAM,
LYNN MASS U S A
LYDIA E. PINKHAM'S
VEGETABLE
COMPOUND
(CONTAINS 18 PER CENT ALCOHOL)
THIS IS ADDED SOLELY AS
A SOLVENT AND PRESERVATIVE
FOR
PROLAPSUS UTERI
OR FALLING OF THE WOMB
AND OTHER
FEMALE WEAKNESSES
INCLUDING
LEUCORRHŒA IRREGULAR AND PAINFUL MENSTRUATION INFLAMMATION AND ULCERATION OF THE WOMB &c
FOR WEAKNESSES OF THE GENERATIVE ORGANS, IT IS REGARDED AS SECOND TO NO OTHER REMEDY THAT HAS EVER BEEN BEFORE THE PUBLIC
PREPARED BY
THE LYDIA E. PINKHAM MEDICINE CO.
LYNN, MASS U S A
GUARANTEED BY THE LYDIA E. PINKHAM MEDICINE CO.
LYDIA E. PINKHAM'S
VEGETABLE
COMPOUND
(CONTAINS 15 PER CENT ALCOHOL)
THIS IS ADDED SOLELY AS
A SOLVENT AND PRESERVATIVE
RECOMMENDED FOR THE TREATMENT
OF
NON-SURGICAL CASES
OF
WEAKNESSES AND DISORDERS
FEMALE GENERATIVE ORGANS
CATARRHAL LEUCORRHŒA
AND IRRITATION
PREPARED BY
LYDIA E. PINKHAM MEDICINE CO.
LYNN MASS U S A

Study these labels they're worth it They typify the changes that have taken place in the past ten years in the labeling of patent medicines' The label on the left was one used before the Food and Drugs Act went into effect the happy days —for the patent medicine exploiter—when anything went The center label was the one used after the Food and Drugs Act became effective but before The Journal had devoted any large amount of attention to the female weakness' cures humbug The label on the right is the one now being used

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QUACKS ARE FINED

The State Medical Institute of Omaha Gets a Setback

On Jan 24 1917 W T Upton, E F Andrews and L H Staples pleaded guilty in the federal court at Omaha to conspiracy to use the United States mails for a scheme to defraud Each was sentenced to pay a fine of $350, the fines were paid

This trio was indicted, March 15, 1913, and the men were arrested in November, 1913, when the Chicago *Tribune* was turning the light on the 'men's specialists" quacks of Chicago One of the firms of medical charlatans to which the *Tribune* devoted a good deal of attention was 'Dr Howe & Co' W T Upton was, according to the *Tribune's* report, manager of the Howe concern and also of a string of similar institutions operated under aliases in different parts of the country Here in part is the *Tribune's* report[1] of the arrest of Upton, Andrews and Staples as it appeared in that paper, Nov 9, 1913

"Upton is charged with conspiracy with E F Andrews and L H Staples, both of whom reside in Omaha, to violate the postal laws by advertising the State Medical Institute,' which is the particular name given by the swindlers to their Omaha establishment

'The indictment charges Upton and his two alleged fellow conspirators with representing the institute to be one conducted by skilled specialists in men's diseases, when, 'whereas in truth and in fact, the institute was not a reliable concern, but was conducted solely for the unlawful, fraudulent and felonious purpose of inducing persons to part with their money and property to said conspirators, without giving anything of value in return therefor'

'Upton was arrested in his office by Deputy Marshal Charles Schrimple on a warrant issued by United States Commissioner Lewis F Mason He was taken to the federal building and gave bond before the commissioner The bond was fixed at $2,000 signed by Alphonse Russell and Charles H Touzalin, president of the Touzalin Advertising Agency Assistant District Attorney Peter P Mindak represented the government in the proceedings

The request for Upton's arrest came from District Attorney F S Howell of Omaha, who forwarded a certified copy of the indictment The document recites the method of the alleged conspiracy and contains copies of numerous letters sent out to intended victims by the 'State Medical Institute'

The means of accomplishing the fraud, according to the indictment was to send through the mails letters, circulars and pamphlets and to advertise in the newspapers that the State Medical Institute' 'was an old established and reliable medical institute, conducted by a large staff of skilled specialists of recognized ability in the treatment of diseases of men, and whose experience, reputation and standing was such as to merit confidence'

The indictment continues that it was claimed 'That it could and would cure men in all stages of nervous debility, vital weakness and loss of power That the said letters, circulars, pamphlets and advertisements were so framed as particularly to attract the attention of and excite the fears and prey upon the minds of boys and young men and cause them to believe themselves to be afflicted with diseases of a private, insidious, and dangerous character, which if not at once arrested would result in permanent disability and loss of power, both physical and mental, when in fact they were in a normal and healthy condition and in need of no medical treatment whatever.'"

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[1] The matter appears in full with a large amount of additional information, in a pamphlet issued by the American Medical Association Men s Specialists, price 10 cents

It thus appears that Upton, Andrews and Staples admit that the 'State Medical Institute," which they operated in Omaha, was conducted solely for the unlawful, fraudulent and felonious purpose of separating the credulous sick from their money 'without giving anything of value in return therefor."

Correspondence

The Differentiation of Spurious from True Anginal Pains by Two Tests

To the Editor:—In some cases of functional heart weakness associated with mild but perturbing chest and arm pain, the functional or neurotic character of the epiphenomena may be differentiated from that more grave in character by the following tests, both of which I have used and found to be of use. The pains in the chest and arms in neurotic angina disappear if the person suffering from them will thrust the little finger firmly into the external auditory meatus, particularly to the left. This no doubt stimulates the aural branch of the pneumogastric nerve, and, by increasing the heart's efficiency thus dissipates the cause of the pain. This is true of pains coming on during exercise.

Again, if the patient will strongly retract the abdomen while suffering from his pain, if the cause is functional heart weakness associated with some hyperesthesia of his nervous system, he will be entirely relieved so long as the abdomen is firmly retracted. This is true more particularly in those who have rather protuberant and relaxed abdomens. Both of these tests will be of service not only in diagnosis but also in calming the fears of those afflicted.

The retracted abdomen method has some therapeutic features as well, since in the compression of the viscera and secondarily of the portal system of veins the right auricle is better filled by the increased venous pressure in the cava and the heart has a little less load to lift. This relief no doubt accounts for the annulling of the pain.

These two methods, it is hoped, will receive further confirmation as to their value by their application, and for this reason I mention them.

Robert L. Pitfield, M.D., Philadelphia.

Sodium Cacodylate in the Treatment of Syphilis

To the Editor:—I was much interested in the study of this subject by Dr. H. N. Cole (The Journal, Dec. 30, 1916, p. 2012).

In 1913 I treated a series of cases of syphilis with sodium cacodylate, but, not getting the desired results, I discontinued its use. In 1915, I became interested again because of the writings of Dr. J. B. Murphy, and applied it in three cases in which the patients had initial lesions.

Case 1.—J. M., man, aged 21, single, shoeworker, came to me with an initial lesion of the penis to the right of the frenum. I began intramuscular injections of sodium cacodylate, 5 grains, in ampuls made by Parke, Davis & Co., every day for ten days. Then I halted for ten days and repeated ten more injections. The sore on the penis entirely disappeared about the ninth day. There was a slight faintly macular eruption of the forearms and abdomen, which soon disappeared. There was no alopecia. When he returned, after the last series of ten injections, there were mucous patches in the throat and some involvement of the left tonsil. I put the patient on mixed treatment, which cleared his throat. He had at end of twenty doses of 5 grains of sodium cacodylate each a positive Wassermann reaction. After mercury and potassium iodid for two months there was a positive Wassermann reaction. To date after three salvarsan treatments intravenously there have been two negatives.

Case 2.—F. S., man, aged 28, married, machinist, had an initial lesion on the penis. Treatment with sixty injections of 5 grains of sodium cacodylate gave results as follows: The initial sore on the penis disappeared in ten injections; there were severe mucous patches of the mouth; the tonsils were badly infected. There was a positive Wassermann reaction. There were syphilids of both arms and shins; marked papular eruption, malaise, and a slight trace of albumin in the urine. I placed the patient on mercurials and at last gave him three salvarsan injections three weeks apart. The result was a negative Wassermann reaction, the skin was clear and the patient felt fine.

Case 3.—D. C., woman, aged 21, single, seamstress, had an initial lesion on the left side of the cervix, and a macular eruption on the face, neck and shoulders, and also, though faint, on the forearms. Thirty injections of sodium cacodylate of 5 grains each were given. The initial lesion disappeared in one week. Mucous patches of the mouth appeared and persisted. The Wassermann reaction was positive. I gave mercurials and potassium iodid for seven months, and salvarsan once. The Wassermann reaction is now negative.

My conclusion after two trials of the use of sodium cacodylate in small or large doses is that it has no effect toward curing the condition; in fact, the throat symptoms were seemingly increased in severity by its use. It has no effect on syphilids of the forearms and shins, and if anything makes them worse.

It improves the appetite, as one would expect. It has some effect on the kidneys as noted in Case 2; it has some effect in healing the initial lesion, as noted in all three of this series; why, I do not know.

I am entirely satisfied that it has no beneficial effect on syphilitics and have discontinued its use entirely in my practice.

I am glad to have read Cole's excellent article, as it shows me that I was correct in my decision not to use it again, as it was worthless.

William G. Ward, M.D., Lynn, Mass.

Compulsory Health Insurance

To the Editor:—In an editorial in The Journal, Jan. 27, 1917, p. 292, appears the statement "The American Association for Labor Legislation prepared a preliminary draft of a model bill on social insurance in which it has properly left blank the section providing for medical services, while asking the assistance of the medical profession to work out this phase of the problem." This statement is not strictly correct. The first two drafts of the model bill for health insurance prepared by the American Association for Labor Legislation left the medical sections in general form. In the supplement to the third and latest draft of the bill appear the sections providing for medical services drafted in accordance with the principles laid down in Dr. Lambert's article, which appeared in The Journal last week. Any readers of The Journal desiring copies of the complete bill can secure them from the American Association for Labor Legislation, 131 East Twenty-Third Street, New York City.

John B. Andrews, New York.
Secretary, American Association for Labor Legislation.

The Response of the Pyloric Mechanism

To the Editor:—In an editorial on W. E. Morse's experiments on the emptying of the stomach (The Journal, Jan. 13, 1917, p. 124), it is stated that the rapidity of discharge diminishes with the increase of acidity, and that this is "so contrary to the accepted version of what occurs" (here stands a reference to my 'Mechanical Factors of Digestion"), that the problem is again presented for solution. In the volume referred to I have given evidence that various factors aside from acidity of the gastric contents affect the rate of gastric discharge. But I have pointed out that when these factors are made uniform and the acidity is varied, the rate progressively diminishes with increase of acidity (see p 120) The fact was established by Hedblom and myself over seven years ago Quite naturally a variation of consistency from that of the food we employed, such as the use of water, for instance, in Morse's experiments, results in the effect of acidity being seen at different concentrations from those we observed—a condition which Morse clearly perceived and explained in his paper That the rapidity of discharge of water diminishes with increase of acidity and that the rapidity of discharge of potato diminishes with increase of acidity are not such contradictory statements as your editorial implies

W B Cannon, M D,
Harvard Medical School, Boston

Blastomycosis of the Tongue

To the Editor —The article on this subject by Dr Gordon B New (The Journal, Jan 20, 1917, p 186) to me is unconvincing

Both Figure 3 and Figure 4 are not characteristic of the microscopic features of any known form of blastomycosis They have more resemblance to lymphosarcoma or the Hodgkin group of tumors than to blastomycosis Furthermore, I am not convinced that the mere presence of blastomycetes (if these are blastomycetes) can excite a lymphoid hyperplasia

Figure 5, pure culture blastomycetes, to my mind is a picture of a culture of common yeast fungi In cultures of blastomycetes, one always finds mycelium

The fact that the lesion healed under potassium iodid and radium is by no means proof that it is blastomycosis

Perhaps Dr New has better proof than he has published in this article If so, it should be published, as those who are familiar with blastomycosis, in my opinion, will refuse to accept his conclusions

Richard S Weiss M D, St Louis

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request

SIMPLIFIED TECHNIC FOR LEUKOCYTE COUNT

To the Editor —In The Journal Feb 9, 1910 p 662 is a brief extract from *Hospitalstidende* Dec 1, 1909 p 1553 under the title Improved Technic for the Blood Count It states that the blood is transferred to a vial containing a bead and a fluid to dilute the blood, dissolve the red corpuscles and fix the whites Nothing is mentioned about the amount of the blood and *amount* of fluid in the vial or test tube Kindly give me an exact extract of the original article covering the points in question

V W Pleth M D Sonora, Calif

Answer —One large drop of blood (25 c mm) is drawn into a pipet and deposited in a vial or test tube already containing a small glass ball or bead and 19 drops of a fluid which dissolves the reds, fixes the whites and prevents shriveling as they dry The test tube plugged with a rubber stopper can then be set aside until it is convenient to make the leukocyte count As many test tubes can be used as desired, and the count can be made several times from each test tube, the average from a number of counts insuring greater accuracy A capillary pipet marked for 25 c mm and for 10 c mm is used for the blood, and a larger pipet for the mixing fluid, marked off for the exact amount required, namely, nineteen times 25 c mm 19 × 25 = 475 c mm A stand to hold a portable set of the test tubes is also convenient, as a number can be accumulated from the same or different cases and kept for a few days until a convenient moment arrives for the microscopic work, or the set can be sent to a laboratory The mixing fluid found best adapted for the purpose consists of 45 c c of decinormal hydrochloric acid, 45 c c of a 0 9 per cent solution of sodium chlorid and 10 c c liquor formaldehydi The count is made by taking up 10 c mm of the fluid in the test tube and spreading it over a circle, exactly 2 cm in diameter, marked on an object glass The specimen is then stained with a mixture of equal parts of a 1 per cent aqueous solution of methylene blue and of a 0 2 per cent solution of sodium hydroxid The stain is left in contact for one minute and then rinsed off, leaving the object glass in water for from two to five minutes, then embedding in cedar oil The number of leukocytes in 100 microscopic fields, multiplied by 50, gives the number of leukocytes per cubic millimeter This formula is based on the ratio between the diameter of the microscopic field (0 4 mm) and the area of the circle (100 sq mm) The article is illustrated, and directions are given for facilitating the count by means of dividing off the circle on the object glass into quarters, etc The blood specimens can be used later for the differential count Ellermann and Erlandsen worked with 100 microscopic fields for each specimen, and state that with a little practice the whole procedure takes amazingly little time With 200 microscopic fields, they found that the error averaged only 3 4 per cent

TREATMENT OF PSORIASIS

To the Editor —Has there been anything new and effective developed in the treatment of psoriasis? Can you advise me if the vaccine treatment is producing any favorable results?

F H Moore M D Herkimer, N Y

Answer —Various new methods have been proposed and tried more or less in the last few years, but none of them has proved of great value In general, chrysarobin ointment still remains the most effective remedy for cleaning up psoriasis The custom today is to use it in rather dilute strengths—from 2 to 5 per cent chrysarobin in some ointment base The lesions can often be cleaned up with Roentgen rays but the method is not to be recommended unless used with great caution As a rule the eruption recurs after Roentgen-ray treatment, as after all other methods of treatment Another recent method of treatment is exposure to highly actinic rays of light Sometimes ordinary sunburning will clear up psoriasis and exposure to ultraviolet light may do the same thing, but as a rule this method of treatment is disappointing Autoserotherapy is the latest method suggested but it has not yet been proved of value The same can be said of the treatment of psoriasis with vaccines

VIBERT'S SOLUTION FOR STAINING BLOOD CELLS

To the Editor —Please give me the composition of Vibert's solution for the preservation of blood cells in their removal from blood stains Mention is made of it in the *India Journal of Medical Research* (3, 214) in an article by W D Sutherland on Examination of Blood Stains in Medico Legal Cases

Heber C Jamieson M D Edmonton South Canada

Answer —Francis S Smith ('Forensic Examination of Blood Stains in the Tropics" *Bristol Med-Chir Jour* July, 1916 p 84) gives the composition of Vibert's solution as a 0 5 per cent mercuric chlorid solution in 2 per cent sodium chlorid He says

> Microscopic Examination —A small quantity of scrapings from the stained area in the case of earth, knives and bamboos or a portion of the fabric in the case of clothes is taken and allowed to soak in a drop of Vibert's solution (0 5 per cent HgCl solution in 2 per cent NaCl) or in a drop of glycerin solution (one part in seven of water) It is then covered with a cover glass and after standing for half an hour is tested and examined under low power high power and oil immersion lenses Mammalian blood cells and the oval granular nuclei of nonmammalian corpuscles can be detected

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Typhoid Immunization —The October number of the *Bulletin of the New York State Department of Health* is the 'Typhoid Number" It is said that in view of the excellent results obtained from prophylactic immunization, it would be wise to immunize all the remaining members of a family in which a case of typhoid fever has occurred A study of typhoid fever in certain sections of the state reveals that about one third of the patients received the infection by contact with an acute case, either in the same family or in the home of a neighbor In view of this it would seem wise, except in well regulated hospitals or homes where there is an adequate water carriage system for the removal of excreta to isolate the patient as rigidly as for a case of scarlet fever

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Connecticut Regular New Haven March 13 14 Sec Dr Charles A Tuttle 196 York St, New Haven

Connecticut Homeo New Haven March 13 Sec Dr Edwin C M Hall 82 Grand Ave New Haven

Connecticut Eclectic New Haven March 6 Sec Dr T S Hodge, 19 Main St Torrington

Illinois Chicago Feb 21 23 Sec, Dr C St Clair Drake Capitol Bldg Springfield

Iowa Des Moines Feb 6 8 Sec Dr G H Sumner, Capitol Bldg Des Moines

Kansas Topeka Feb 13 Sec Dr H A Dykes Lebanon

Maine Portland March 13 14 Sec Dr Frank W Searle 776 Congress St, Portland

Massachusetts Boston March 13 15 Sec Dr Walter P Bowers Room 501 No 1 Beacon St. Boston

Vermont Montpelier Feb 13 Sec Dr W Scott Nay Underhill

TEACHING INTERNAL MEDICINE

Each Student a Teacher

STEWART R ROBERTS, S M M D
Professor of Medicine and Clinical Medicine Emory University
(Atlanta Medical College)
Atlanta Ga

Much is written of curriculums and hours allotted for different courses, and but little on methods of teaching Even medical teachers and whole faculties seem to lack for words when it comes to didactic methods In the selection of teachers and faculties much consideration is given to the training and research ability of a man, and but little to his real teaching ability, or his personal power to impart his training and knowledge The old lecture is largely a thing of the past, yet certainly students need in their senior year some didactic touch in internal medicine apart from the bedside The following twofold round table idea has been gradually developed in the Atlanta Medical College, and I have used it for two years with increasing evidence of its value With small classes and in other departments the plan will probably be equally practical

First in the examination of patients in the hospital a student is assigned to a patient to take the history, make the examination, do the laboratory work, and hand in a detailed report of his findings Questions arise in the examination or in the laboratory work and the student in charge of the case is assigned work on which he reports at the next meeting of the class For example, one patient with pellagra has a dicrotic pulse and the student who is studying the case is assigned, in addition to the ordinary study of the case, the dicrotic pulse—to explain its origin, its meaning, in what diseases it occurs and to see if he can determine by palpation the difference between the dicrotic pulse, the pulsus alternans and the bigeminal pulse At the next meeting of the class or of the section, he summarizes his studies, or writes out the distinctions, and makes diagrammatic tracings of each pulse form

Another student in examining a patient found a marked pyorrhea stained a pus smear, and found the *Amoeba buccalis* He was assigned the subject of "amebas in man," and he is now preparing a paper on that subject, and will summarize his findings on the board This summary takes from two to five minutes to notice or read but the student has looked up the literature, and has a fair idea of it when he reports

Another student studying a case of lobar pneumonia was requested to give his section the next day in the ward a differential diagnosis between lobar and bronchopneumonia, and the following day he gave a differential diagnosis between acute bronchitis and bronchopneumonia One student may call another in consultation on his case The idea is to let the student studying pneumonia in the ward know not only his patient and the disease, but also teach, as far as he can, what he has learned to his fellows in the section His teacher simply outlines, guides and corrects The student is human, he realizes his powers, and his ability awakens his interest and energy

Secondly, this teaching plan includes a systematic method of study of the literature, the preparation of papers, and an individual talk by the students to the class as a whole In addition to the bedside work at the Grady Hospital, the seniors receive thirty hours from Professor Strickler on infectious diseases, and thirty hours from the writer on diseases of the heart, arteries, blood and kidneys, or one hour per week throughout the year The present class numbers sixty-six men, and at the beginning of the year a subject is given to each man A list of the men and subjects is posted in the library The subjects follow, and it will be found that these cover the headings usually included in teaching diseases of the heart, arteries, blood and kidneys Assignments are so made that at the close of the year, taken together, they form a systematic course, and subjects are presented to the class in the following order

Conduction system
Position of the heart
Endocarditis
Myocarditis
Pericarditis
Senile heart
Heart poisons
Signs of heart failure
Passive congestion
Hypertrophy and dilatation
Congenital heart disease
Arteriosclerosis
Tachycardia and bradycardia
Blood pressure technic
High pressure
Aortitis
Embolism and thrombosis
Angina pectoris
Pulse character
Pathology of aneurysm
Symptoms and treatment of aneurysm
Sinus arrhythmia
Premature contractions
Auricular fibrillation
Auricular flutter
Paroxysmal tachycardia
Pulsus alternans
Heart block and Adams Stokes disease
Heart in pneumonia
Heart in fevers
Cardiac asthma
Circulation in cirrhosis of the liver
Heart strain
Edema
Treatment of edema
Digitalis
Opium
Strophanthus
Nitrites
Nauheim baths
Nervous symptoms in heart disease
Secondary anemia
Pernicious anemia
Banti s disease
Leukemia
Movable kidney
Congestion of the kidney
Renal calculi
Casts
Albumin
Sugar
Nonprotein nitrogen
Ammonia
Urea
Uric acid
Diabetes pathology
Acidosis
Treatment of diabetes
Pyelitis
Pyonephrosis
Functional tests
Acute nephritis
Tubular nephritis
Chronic vascular nephritis
Uremia
Influence of focal infection on heart and kidneys

The student is directed to write a paper on the subject assigned him and references in books and current literature are given him outside the class and occasionally suggestions for subheads and outlines of theme He is required to add a bibliography at the close, giving references and sources of information When the time has come to discuss, for example premature contractions, the student assigned that subject hands in his paper walks to the front and addresses the class, summarizing his studies and paper He has been told that he is the authority in the class for the year on that subject, in other words, he has a personal teaching responsibility to the class for his subject and frequently he is so full of it that the difficulty consists in holding him down to the ten twenty or thirty minutes which the importance of his subject justifies There is not time enough to exhaust any subject, and the attempt is made to hold him strictly to the mountain peaks of importance in his talk Frequently I throw out a question, or lead him back when he wanders afield or into too much detail At other times and with less important subjects, he is permitted to summarize in the form of 'conclusions" on the blackboard In his paper, however, he must go thoroughly into the subject discuss details and pathology, and fully cover the disease At the close of his talk or summary, his fellow students may ask him questions and remind him, always courteously of omissions Often a student requests his paper back that he may rewrite it because the discussion has brought out points omitted in the first draft Each paper is corrected, and often handed back for revision or because the bibliography has been omitted, but rarely for failure to cover the subject thoroughly

Questions arise which demand ready assistance from the authority in the class on that particular subject For example, the student discussing the senile heart edges too far into the subject of myocarditis, and the student authority on myocarditis comes to his aid A misstatement on the part of the student-lecturer brings an instant shaking of heads The attention is perfect The hour is never long enough for students, subjects or teacher After the papers are corrected, they are filed in the library and form the textbook for the class for the year One student takes notes in shorthand typewrites them, and sells the lot to each member of the class The examination is based on these papers If time and opportunity allow, the student is referred to hospital cases illustrating his subject, so that he gains material for his paper from books, current literature and the bedside After a student has finished a subject, frequently a second subject is assigned to him

It is true that but little time can be given to each subject, and the objection can rightfully be made that while each one is covered thoroughly on paper, it is covered only superficially before the class, but the paper is open in the library to the study and criticism of each man The added individual interest and pride on the part of the student transforms what is called teaching into personal association Students and teacher are together teachers and student, and their teacher is simply an older student, or in the beautiful word of the Japanese for teacher, *sensi*, one born before, or one who has experience

ADVANTAGES OF THE METHOD

1 It teaches the student to consult many books and current literature, and to find illustrations at the bedside

2 It teaches him to write a paper, and prepares him for activity in the hospital and the medical society

3 It teaches him to talk before his fellows, and to think on his feet

4 It teaches him the use of the library and the importance of current literature

5 It teaches him to summarize, to give authority for his statements, and to base his conclusions on facts and not on opinions

6 It arouses his interest, compels his attention, impresses his memory, and stimulates his reason

Oklahoma July Report

Dr Ralph V Smith, secretary of the Oklahoma State Board of Medical Examiners reports the oral and written examination held at Oklahoma City, July 11-12, 1916 The total number of subjects examined in was 11, total number of questions asked, 100, percentage required to pass, 70 The total number of candidates examined was 32 of whom 29 passed including 1 osteopath, 2 failed, and 1 was refused registration on account of immoral character Fifteen candidates were licensed through reciprocity, including 2 osteopaths Five candidates were granted reregistration licenses including one nongraduate and one whose graduation could not be verified The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Birmingham Medical College	(1915)	83
Chicago College of Medicine and Surgery	(1916)	84
Loyola University	(1916)	82
University of Louisville	(1916)	81
Johns Hopkins University	(1915)	87
Washington University	(1916)	77
St Louis University	(1916)	85
University of Oklahoma (1915) 82 (1916) 76 78 79 82 82 83 84 86 86 87		
Meharry Medical College (1914) 70	(1915)	71
University of Tennessee (1915) 82, (1916) 78 79 80 72		
Baylor University	(1916)	79
Dallas School of Physicians and Surgeons*	(1911)	70
University of Virginia	(1916)	87
FAILED		
University of Oklahoma	(1916)	78 †
University of West Tennessee	(1909)	‡

* Information obtained indicates that no institution by this name was in existence in 1911

† Fell below 50 per cent in one branch

‡ No grade given

College LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas (1912 2)	(1915)	Arkansas
Chicago College of Medicine and Surgery	(1912)	Arkansas
Rush Medical College	(1906)	Kansas
Eclectic Medical University	(1912)	Arkansas
Medical College of Ohio	(1901)	Nebraska
University of Pennsylvania	(1907)	Texas
Meharry Medical College	(1914)	Tennessee
University of the South	(1901)	Texas
Baylor University	(1905)	Texas
Fort Worth School of Medicine	(1914)	Texas
University of Vermont	(1904)	Vermont

Book Notices

Bacteriology General Pathological and Intestinal By Arthur Isaac Kendall B S, Ph D Dr P H Professor of Bacteriology in the Northwestern University Medical School, Chicago Cloth Price, $4 50 net Pp 651, with 107 Illustrations Philadelphia Lea & Febiger, 1916

This book covers ground that is dealt with in other texts on bacteriology, but as it reflects the experience and personal views of the author it will prove a valuable addition to the library of the student of medicine Dr Kendall designates his book as covering general, pathologic and intestinal bacteriology, and while it is not clear why intestinal bacteriology should be so sharply differentiated from general and pathologic bacteriology as the title seems to imply, the summary of Dr Kendall's own work on the intestinal flora will be generally welcomed, a little overemphasis is not likely to do harm The text as a whole is clear and accurate and brought well up to date The statement on page 488, with regard to botulism, that hams similar meats and meat products alone cause the disease,' is not correct in itself, and is in some degree contradicted by a statement on page 486 In this section no mention is made of the important work done on botulism in California A few misprints are noticed here and there, as on pages 35, 130 358 and 607, but they are not for the most part very important The use of "pleiomorphic for "pleomorphic" seems to be more than a mere misprint since it occurs throughout the book The style is fairly clear and straightforward, although involved sentences like the following are somewhat too frequent "Papasotirin and Prescott have isolated bacteria indistinguishable from *Bacillus coli* by cultural methods from hay and dried grains and the organism is very frequently present in flour, consequently the identification of it in milk does not furnish conclusive evidence of contamination either from human or bovine sources"

The New Method in Diabetes The Practical Treatment of Diabetes as Conducted at the Battle Creek Sanitarium, Adapted to Home Use Based Upon the Treatment of More than Eleven Hundred Cases By J H Kellogg M D LL D Chief Medical Director of the Battle Creek Sanitarium Leather Price $2 50 net Pp 177 Battle Creek Good Health Publishing Company 1917

In this book, Dr Kellogg discusses the Allen treatment of diabetes with particular reference to the needs of the trained nurse and the intelligent patient, as well as of the physician There is, of course, no question that the diabetic patient needs safe instruction This is especially true when he is undergoing at home such a treatment as that outlined by Allen The author considers first the fundamental questions of body physiology and pathologic chemistry in this disease Under 'New Method in Diabetes," he briefly points out the restrictions to which the diabetic must be prepared to limit himself Under "Modern Methods of Examination" the author then takes up the diagnostic procedures involved in the determination of the severity of the patient's condition He introduces here a chart known as the 'Metabolism Graphic," a specimen of which is included with the book The use of this chart permits the physician to have before him in graphic outline an analysis of the patient s condition This analysis includes an estimation of such factors as the urinary sugar the percentage of increase of blood sugar, the carbohydrate balance, the degree of acidosis, the energy balance the water balance the respiratory quotient the food intake the patient s weight etc and each of these points is discussed separately in the chapter mentioned The discussion of feeding of diabetics includes a description of the inauguration of the fast the method of feeding with estimation of calories and food values and also a series of standard bills of fare The author then takes up general health rules for the diabetic These rules would—by the way—also be beneficial to those members of the family not afflicted with the disease Other chapters concern complications of the disease, the care of a case in the home, directions for testing the urine, etc The remainder of the book, about fifty pages, is devoted to recipes for the preparation of the special foods required by the diabetic

Social Medicine, Medical Economics and Miscellany

A Rural School Survey

Public Health Service Bulletin 77 describes a survey of the rural schools of Porter County, Ind , conducted by three officers of the United States Public Health Service The survey covered not only the physical and mental condition of the children, but also the schoolhouses, grounds, water supplies, toilet accommodations, etc Porter County has an area of 415 square miles and a population of 21,250, 85 5 per cent being native born The school population is 3,933 and the total school enrolment 3,103 The average number of children in a family was 4 8, or 2 44 boys and 2 36 girls Seventy-five rural schoolbuildings were surveyed, and medical examinations made of all the children Of the buildings, thirty-three were frame, two cement and forty were brick, and sixty-seven were one story In the seventy-five schoolbuildings there were 114 class rooms Four rural schools obtain their water supply from town water systems, two are supplied by wells of from 125 to 130 feet deep, and thirteen or 17 3 per cent, are without wells The remainder, nearly 75 per cent, are supplied from shallow driven wells Sanitary drinking fountains were found in seven schools, but of these two were out of order and one was not in use In all other cases, the children drink at the well For toilet accommodations, there were four inside closets and seventy-one outside privies, none of which ranked higher than 50 in a possible 100 Sinks for washing were provided in three schools, while in fifty-six schools common wash basins were found Paper towels were provided in eight schools, and individual towels provided by the parents were in use in three schools Common towels were used in forty-one The report contains summaries of findings on floor material, school desks, window shades, blackboards, illumination, ventilation and heating, temperature regulation, etc , all most interesting and of ultimate bearing on health conditions, but too lengthy for recital

Part II of the report covers the physical condition of rural schoolchildren As stated above, there is a total of 3 103 rural schoolchildren in Porter County The average daily attendance in the rural school for the school years of 1914-1915 was 2,512 The physical survey included 2,488 schoolchildren, 1,253 boys and 1,235 girls The age limit was from 6 to 16 Interesting data regarding height, weight, racial differences, vital capacity, chest expansion, cephalic index, pulse, respiration and nutrition were collected, but they are not capable of being generalized Regarding defects and diseases, however, 2,228 disease conditions were found among the boys and 1,985 among the girls Among 1,253 boys, there were 392 defects of hearing and 592 defects of vision, 749 boys had defective teeth, 166 had adenoids, 89 had enlarged tonsils and 25 had spinal curvature Of the 1,235 girls, 348 had defects of hearing, 550 defective vision, 637 defective teeth, 122 had adenoids and 106 had enlarged tonsils Defects of the heart were rare, only seven boys and three girls having any serious circulatory disturbance Only two cases of tuberculosis were found, both of them being in girls The large number of dental defects is easily accounted for by the fact that 18 3 per cent of the boys and 10 5 per cent of the girls had never used a toothbrush, 67 8 per cent of the boys and 48 6 per cent of the girls had used a toothbrush only occasionally, while with only 13 9 per cent of the boys and 40 9 per cent of the girls was the use of the toothbrush a daily habit A study of the mental conditions of 1,087 girls and 1,098 boys made by the Binet-Simon tests show 193 children who were retarded and 21 who were especially retarded, making 214, or 9 3 per cent, of the children whose mental condition needed special attention and instruction Mental defectiveness was found almost equally in the two sexes A larger proportion of physical defects was found among the retarded children than among children whose mentality was normal Twenty-one children, seven girls and fourteen boys, were feebleminded to a degree which rendered it improbable that they would ever develop beyond the mental status of a child Three epileptics and two morally irresponsible children were found

From the facts collected, the surgeons in charge of the survey concluded that there is an undue number of one room rural schools in the county, and an undue number of old buildings which have passed the limit of usefulness The large number of children presenting physical defects is an evidence of the need of medical supervision, both for the sake of the child and for the protection of the community, while the number of mentally defective children found emphasizes the necessity of a mental classification of the children in order to separate those in need of institutional or individual treatment A number of recommendations are made, among them being the consolidation of rural schools wherever possible, the remodeling of many others along sanitary lines, greater attention to daylight illumination, better provisions for sanitary toilet accommodations and for the protection of school water supplies, better heating and ventilating provisions the combining of the duties of medical inspection of schools with those of the local health officer, and the securing of a full time health officer for the county

Women in the Munition Factories

An investigation of working conditions and the home surroundings of women workers in one of the munition factories in New England was made by the Russell Sage Foundation under the supervision of Prof Amy Hewes, of the Department of Economics Mount Holyoke College, and former secretary of the Massachusetts Minimum Wage Commission In the *Survey* (Jan 6, 1917), Professor Hewes gives some of the findings of the investigation Among 164 women 146 of whom lived at home with their families, and eighteen in boarding houses or furnished rooms, the majority were born in the United States Ten were from foreign countries All were regarded as alert, ambitious and representative American working women The majority were under the age of 24, and 80 per cent were unmarried In this munition town, which is at the center of the munitions business, Professor Hewes says three serious issues have arisen with reference to the women along with the high rate of wages Women have been induced to work long hours at night, they work with or near explosives which sometimes mean accident, industrial poisoning or other illness, the high price of labor has been paralleled by the exceptionally high cost of living, which includes high rents, with almost inevitable overcrowding or other unfavorable living conditions Night work is unpopular with most of the women, on account of the difficulty of getting sufficient sleep in the daytime, unsuitable time for recreation and, in the case of married women, neglect of their houses and children, with consequent physical deterioration of the latter On account of the tension, high speed and conditions surrounding the work, much the same conditions are developing here as among the munition workers in England In September, 1915, an English committee, appointed under the ministry of munitions 'to consider and advise on questions of industrial fatigue, hours of labor and other matters affecting the physical health and physical efficiency of workers in munition factories and workshops, went on record as opposing night work as being uneconomical because of higher wages and lower output, on account of the difficulty of arranging adequate lighting, because of the difficulty of securing sufficient sleep, and because of unwonted meal hours with consequent derangement of digestion For profit alone, it is said, the manufacturers in the United States are producing munitions with feverish haste by methods which have been declared wasteful by the English investigators The tendency is to lengthen the hours and to reduce wages, notwithstanding that the cost of necessities and rents is now out of proportion to even the high wages paid, as shown by a comparison with the wages in other New England industries in normal times Connecticut, the state in question, it is said, has no law preventing all night work by women They are allowed to work until 10 p m, and the factories get around the law by having them rest from 10 to 12 and then go to work again, the law saying nothing specifically about when they may go to work in the morning Among the suggestions for bettering conditions among women workers, Professor Hewes offers the following prohibition of night work, reduction of working hours from ten to eight, and for only six days in the week, a minimum time of one hour for luncheon (15 minutes being now allowed in some factories) education in accident prevention, with a compensation law providing higher compensation and a shorter waiting period, provision for clinical treatment of sufferers from industrial diseases and compensation as in the case of industrial accidents

Too Many Medical Papers

The scarcity of paper and its increased cost seem to be universal The *Policlinico* of Rome, in commenting on the fact that many medical journals have suspended and that others have been reduced in size, regards the condition as not an unmixed evil "The most tangible result," it says is that the amount of material published is sensibly reduced This is not a serious evil, as too much has been and is still being published It is not a bad thing for literary production to be restrained, condensed, reducing particulars to inclusive wholes It is certain that the larger proportion of medical journals contain too much that is trite, deplorably banal They accumulate too many useless data which might be suppressed to great advantage Many articles have not the slightest reason for existing and they merely cumber medical literature Graphomaniacs [this is not a bad word, it would not be out of place if applied to some medical men in this country] abound among physicians, some are graphomaniacs from temperament, others from policy" Presumably the *Policlinico* means here that it is an elegant and ethical form of self-advertising Farther on "Regardless of the superficiality of certain arguments they dilate on them and dilute their personal observations with a flood of already known facts and opinions Their writings contain very little that is new, and what is new and interesting is padded out and strung along *ad nauseam* The same work appears first in some first class journal and then, under other titles and with slight changes, it appears in minor periodicals and it fills up space and wastes time in medical bibliography We refrain from further descriptions for fear that they might have a too personal tinge We all know that the incontinence [a good word in the original—it is *incontinenza*] of these authors might be checked and corrected" The *Policlinico* then begs writers to spare the editorial staff the waste of time and energy required to pass judgment on unworthy articles 'not to mention the disagreeable task of rejecting such manuscripts and the load of responsibility it places on the editorial staff The writer concludes with this advice, which we respectfully pass on Abstain from recording the commonplace, and let those who have something really interesting to report suppress useless details long historical introductions, and rehashing of textbooks'

Health Administration—The results of the health survey of St Paul, made by Surg George B Young U S P H S, appear in *Public Health Reports* January 12 This study is similar to those made by the service in other cities Dr Young finds that the situation from a legal standpoint is uncertain Old ordinances contradict each other or are not in accordance with the charter, while some public health activities are untouched Some of the provisions of the charter are contradictory and some of the ordinances have been automatically repealed as being in conflict with the charter The general sanitary status of the city was found to be good, the fundamental elements of a healthful community—a healthful site, a good water supply, a prosperous population derived from strong stock and unweakened as yet by generally congested housing and insanitary industrial conditions—are all present The death rate for the city per thousand of population was never higher during any year from 1906 to and including 1915 than 11 4, and more than half of those years it has been below 11

Medicolegal

Using Mails for Fraudulent Scheme of Alleged Divine Healing

(United States v Schlatter et al (U S) 235 Fed R 381)

The United States District Court in California, overrules a demurrer to an indictment charging the defendants with the crime of conspiracy to violate Section 215 of the federal penal code Briefly the scheme devised and contrived by the defendants, as alleged in the indictment, was that they would induce any and all persons whom they could induce to communicate with them to believe that they could and would cure almost all manner of known diseases by and through the medium of divine power Specifically, for instance, it was alleged that the defendants conspired to represent to credulous ones, with whom they could get into communication, that they could and would bless a handkerchief, and that if a person afflicted would apply such handkerchief to the afflicted portion of his or her body, he or she would thereby become cured This, of course, was to be quid pro quo or consideration, not necessarily certain or definite in amount but such a sum as the one seeking a cure felt justified in contributing Substantially, the charge against the defendants was that, with the knowledge that they could accomplish no cures and with the deliberate intention to defraud, they conspired together to contrive and consummate a scheme wherein and whereby through the medium of alleged divine healing, they would obtain and convert to their own enrichment the money and property of such persons as might be sufficiently gullible as to be attracted by their specious and alluring promises of relief all the while intending that such persons should receive no return for their money and property, save that comprehended in a dismal and costly experience As a part and parcel of the scheme, and in furtherance thereof it was alleged that they intended to and actually did, make use of the mails of the United States The court says that in its judgment, this stated a complete offense and, if the proofs be made in adequate support of the allegations in the indictment there was no doubt but that the defendants should suffer punishment therefor The point made in the brief of the demurring defendant's counsel apparently was that the defendant was and professed to be nothing more than a divine healer, and that divine healing has been practiced since the time of Christ and in some form or other is practiced now by many reputable and widely recognized individuals and cults That mental healing or even divine healing per se or in and of itself is under the laws of the land, as lawful as healing with drugs or by massage or other mediums is true But it is not true, never has been true, and never will be true that fraud can be glossed over or rendered reputable in the eyes of the community merely because it is associated with, or a feature of, some undertaking otherwise lawful in its nature and innocuous in its effect In other words, the mere fact that a fraudulent scheme centers about divine or other healing does not in any wise or sense serve to take it out of the domain of a fraudulent scheme, and if, in furtherance of such a scheme conceived in fraud, the mails of the United States are made use of without doubt by whomsoever conceived or consummated, the perpetrators of such schemes should receive prompt and merited condemnation and punishment It was therefore no answer to the crime charged in this indictment to assert that the defendants were engaged in the praiseworthy vocation of divine healing That in no wise answered the charge that with a knowledge that they were rendering no service at all to their "patients, and with the deliberate intention on their part to defraud their patients, they were using the mails of the United States in aid of their scheme to separate their patients from their money The whole question without doubt revolved around the proposition as to the good faith of the defendants If they were acting in good faith in their promise to bring the bloom of health back to the cheek of him who might make use of one of their blessed handkerchiefs then, no matter how visionary their view may have been, no matter how ill founded their conclusions may have been, no matter how much sheer incompetence in the exercise of judgment may have been their portion, they were not liable to prosecution as for the perpetration of a fraud on those who became their dupes The simple query in the case was Were they actuated by good faith? The indictment said they were not, but were moved by an intent to defraud In the face of that they could not claim that no crime was charged against them

Admissible Evidence of Criminal Abortion

(State vs Newell (Minn) 159 N W R 829)

The Supreme Court of Minnesota, in affirming a conviction of the defendant of manslaughter in the first degree in the commission of an abortion on a young married woman, says that the woman went to the home of the defendant with the avowed purpose, if the testimony of her husband and her mother was credited, of procuring an abortion There was evidence that there was an abortion The evidence that the defendant caused it was largely circumstantial, but it rather clearly pointed to her guilt The question was for the jury, and the evidence very amply supported the finding of guilty Declarations made by the woman while under treatment, and before the abortion, as to the treatment given by the defendant, were competent evidence Nor was there error in receiving on behalf of the state the testimony of another woman who stated that shortly before the date of the crime charged she went to the defendant for the purpose of having an abortion performed and that the defendant consented to perform it, though it was not performed It was urged that the admission of this evidence, and other of like character was error The authorities approve such testimony It is received for the purpose of showing a guilty or criminal intent in doing the act alleged to be criminal It is not received in proof of the doing of the act or for the purpose of making it more likely in the minds of the jurors that the accused committed the crime charged The proper application of this rule does not infringe on the general rule that it cannot be shown that the accused has committed other crimes But the court on request should clearly limit the scope of the evidence

Basis for Injured Person to Recover for Medical Treatment and Medicine

(Tarrant County Traction Co vs Bradshaw (Tex) 185 S W R 951)

The Court of Civil Appeals of Texas says that one of the physicians who attended Plaintiff Bradshaw and treated him for his injuries attributed to the negligence of the defendant company testified that the reasonable charges for the treatment and medicine which he gave him, if a man was able to pay it, would be $25 The Court thinks this was sufficient to sustain a recovery as to the medical services and medicine The Court says that it does not think the inclusion of the clause, "if a man was able to pay it" would destroy or necessarily limit the force of the testimony to the effect that the reasonable charge for the treatment and medicine would be $25 The Court understands that the witness meant to say, or that at least such was the permissible construction of his language, that the services rendered and the medicine furnished were of the reasonable value of $25, and that the witness regarded the plaintiff legally bound by reason of said services and medicines furnished to pay said sum, but that by reason of the plaintiff's physical and financial condition, he might not be able to pay said amount, if any at all Where a plaintiff is entitled to recover for medical attention and medicines necessary in the treatment of injuries, the defendant is liable, not for the amount actually expended or incurred by the plaintiff, but only for the reasonable or market value of such services, drugs, etc, as were reasonably necessary and for which the plaintiff has paid or has become legally bound to pay The defendant not being a party to the contract of employment between the plaintiff and the physician or nurse, or the contract of purchase between the plaintiff and the druggist, his liability, if at all, is not fixed by the amount paid or promised to be paid by the plaintiff for such services and supplies as were reasonably necessary in the treatment of the injuries, but the defendant's liability is limited to the reasonable or market value thereof In this case the fact that the plaintiff sent for the physician, as testified by the former, and accepted his services, would, in the absence of some other agreement, create a legal liability to pay therefor on the part of the plaintiff Therefore there were services requested, rendered and accepted, and evidence of the reasonable value thereof, which the Court deems to be all the law requires as to this character of proof

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Society Proceedings

COMING MEETINGS

Congress on Medical Education Public Health and Medical Licensure, Congress Hotel, Chicago Feb 5 6
Western Roentgen Society Hotel Sherman Chicago Feb 16 17

CHICAGO MEDICAL SOCIETY

Meeting held Jan 10 1917

The President, DR A AUGUSTUS O'NEILL, in the Chair

Social Insurance Its Bearing on the Profession and the Public as Observed in Great Britain and on the Continent

FRANCIS NEILSON, M P, England Americans are not informed as to the economic industrial, social and religious condition of the British people You cannot understand the genesis of insurance in Great Britain unless you know something about these conditions

Those familiar with the history of the first half of the nineteenth century, and who have relied on newspaper reports for knowledge of current conditions, have assumed that Parliament has reformed certain conditions It is a sad commentary on the economic conditions when you find people agitating for national insurance There was no popular demand for the insurance act It was sprung on Parliament and on the people Perhaps no one was more surprised than Lloyd George himself How was it possible for the Liberals to bring forward a measure that occupied half the time of Parliament without there being any demand for it? The national insurance bill was not in the official program put before the electors six months before the national insurance bill was introduced in the House of Commons In the official program put before the electors in December, 1910, we asked for economic legislation, for constitutional reforms, for better housing laws, for electoral reforms, for educational reforms, and bills for many other things, but not for national insurance It was simply a political dodge

We had had a few years before a royal commission to inquire into the condition of the poor laws Usually in Great Britain when we want to put a rather awkward question out of the way, we form a royal commission to inquire into it

The Poor Law Commission reported that certain evils ought to be remedied by Parliament This commission had the benefit of the investigations of Booth and Rowntree I do not know to what extent the investigations of Booth and Rowntree on social evils are known in America Booth showed that 12,000,000 British people, a little more than one fourth of the population of the United Kingdom, were living on the poverty line We had employers' liability and the friendly societies They did an enormous amount of good But just before the insurance bill was introduced into Parliament, the government received returns from these friendly societies, showing that they were not all solvent but that through precariousness of employment there was something like a quarter of a million paying members lapsing in a year Many of the smaller lodges, particularly in rural areas, were in serious financial condition Under the old friendly society grant there was a great deal of malingering Trade unions were also benefit societies We had also small insurance societies, notably the Provident and the Etna, which catered particularly to the small wage man That was the condition before the bill was introduced

When the royal commission issued its report, the Fabians and socialists got busy The Fabians, headed by Sidney Webb and George Bernard Shaw, drafted a manifesto based on the recommendation of the Poor Law Commission urging that there should be sickness benefit, medical benefit disablement benefit and other benefits given to those who could not help themselves

At the election in December, 1910, candidates had to answer questions from the socialists and Fabians based on the suggestion of the Poor Law Commission The majority of men elected pledged themselves to urge the government to bring in a bill dealing with the recommendation of the Poor Law Commission Lloyd George introduced a social insurance bill in 1911 It was known as the 'fourpence for ninepence measure,' because under the bill the insured worker pays fourpence the employer pays threepence and the state pays twopence, ninepence or 18 cents to be the amount per unit to pay for the scheme of insurance, and for that ninepence the laborer gets medical sickness benefits, disablement benefits consumption benefits and other benefits besides All persons between the ages of 16 and 65, with an income of not more than £150 a year, or $800 were to be insured persons under the act There are one or two exceptions to that The men's funds and women s funds are held separate The full sickness benefit was to be for twenty-six weeks

No sooner was the bill introduced than a storm broke out against it The trade unions at first would have nothing to do with it They said it would disintegrate all the work they had done for generations Domestic servants were to be included Wage earners getting from 25 to 30 or 40 dollars a week arose in disgust against the idea of having to insure domestic servants They said, 'When my servant is ill I pay the doctor for his services, and look after the woman's or man's health I do not want the state to step in and tell me what to do with my servant" Employers objected because the government fixed on them the responsibility of seeing that the employee was insured and that his contributions were paid regularly With the vast amount of casualties among laboring men, chore women, washerwomen and so on, the government saw the difficulty of drawing all the people between the ages of 16 and 65 with an income of less than $800 a year into the purview of the bill Let me tell you of one difficulty in the case of the casual laborer

I live in an agricultural county, and I have a man come one day a week to work in my garden This man works one day a week for me, the next day he works for some one else and so on for six days in the week I asked in the House of Commons who was to be responsible for his insurance money A gentleman on the other side said, We think that the man who employs him the first day in the week should be responsible for his insurance money" And that is the law The man who pays him the first day is responsible for his insurance money

Not long after the bill was in the House of Commons, a bigger storm than any of those I have referred to broke, and that was the storm of the doctors I never knew they had so much energy It was amazing The doctors organized a tremendous agitation against the bill, and the House of Commons for three months or more was receiving objections from doctors from all parts of the country Lloyd George said

The doctors proceeded with their criticisms on five assumptions, all of them erroneous They proceeded on the assumption that the government had fixed the capitation grant They did not The amount of capitation grant was to be fixed by the friendly societies with no appeal to anybody That is not the bill One assumption was that under the capitation grant families were included They were not Another assumption was the system of club doctors was to become universal and not from choice That was not the bill And the last assumption was that all the bad cases were included under the capitation grant They were not The five main assumptions on which the whole of this agitation was based were absolutely erroneous They had absolutely nothing to do with the bill"

He said that the government was making the most liberal provision for the doctors that had ever been made in club practice in England The chief trouble in the minds of the doctors was that if the limit of income was to be $800 a year and the insured was to get ninepence for fourpence, there would be temptation on the part of those whose income was much larger than $800 a year to get within the limits of the bill Many of you are wondering why this arbitrary limit of $800? In England we have an antiquated, effete system of taxation, the so-called income tax Before the war, under the income tax act, incomes of £160 a year and over were liable to taxation One of Lloyd George's excuses for not limiting the bill to those who could not help themselves was that they had no data on the £2 household The £2 household would be the £140 a year house, so they fixed this £160 or $800 because the income tax began at that figure But there is more difficulty in ascertaining in Great Britain the returns from the household of £160 than there is in getting returns from the household of £16 000 Any one who knows the industrial and economic life of the English people must understand the enormous difference in the social position of the family getting £2 and the other family getting £3 The doctors said We know the households and what they can pay better than the treasury We know the members of the family who are working and we know that the arbitrary fixation of $800 a year will mean that many a household that is getting £4 or £5 a week will not pay as much as they ought until each individual worker comes within the purview of the insurance act' They were getting ninepence for fourpence and the government could not stop them

We want you to be wise in your agitation regarding health insurance legislation and not make the mistakes we did in Great Britain We want you to familiarize yourselves with every phase of the subject before securing legislation I suppose in the main that the doctors who attend the very poor were never better off than they are now in Great Britain If you get the state to assure you payment naturally you would favor that system in the majority of cases

After the insurance act went into operation we found that there were resentment and dissatisfaction all over the country A number of amendments had to be passed but I think it is perfectly fair to say that the English act has not had a fair trial in the two years and a few months it was in operation before the war broke out An act of that kind should be tested for at least ten years before final judgment is pronounced on it

Lloyd George was right when he said that this measure was only palliative, it is not curative If it is to be made an effective measure we must deal with the land question So instead of bothering yourselves about national insurance, old age pensions and the blunders that have been made in Germany and Great Britain over social insurance, let me urge you to study fundamental questions economic questions the land question in this country and then get the capital value of the land not only on the surface but as far down as you can go including the ores, the clays, the coals, the slates the marble and everything and put taxation on them and then, when you have opened up the country again, you will find that people having an equal opportunity will not rely on the state, but will get out like men and women and work for themselves and produce in abundance Having abundance and health and leisure, they will find their own souls

DISCUSSION

Dr William A Evans discussed the proposed method of administration of the insurance act

Prof James H Tufts University of Chicago The medical profession owes a duty to these now suffering worse in their health than the more well-to-do members in the community We have a right to ask why so many are suffering and what can be done about it Poorly paid people have much more ill health in proportion than the well to do Part of poverty is due to ill health, just as part of ill health is due to poverty A great deal of the burden of charity is due to ill health It is tremendously to the advantage of the public that the medical profession should receive proper remuneration that it should be well paid to have the best equipment for its work and to encourage the right sort of men to go into the profession The compulsory feature is one of the things we should think about seriously It is necessary in providing for better health of the large group of people who now suffer that there should be a compulsory feature It is more economical to administer a system that includes practically every one than a commercial insurance system in which the expense of collecting is 60 cents on the dollar The larger proportion of people who work are not employed by establishments which make provision for sickness The great proportion of workers are not members of trade unions which pay sick benefits A large proportion of working people are not provided for under the existing scheme The proposed bill does not admit as a carrier any society for profit

Dr Charles J Whalen I agree with Mr Neilson that we are a nation of imitators I believe that social or health insurance has come to stay in this country There is a demand for social insurance largely because eleven European countries have so far adopted it The medical profession of Illinois cannot afford to oppose health insurance We may disagree as to the method of administration, we may not like the tentative draft of the bill, we may have objections to this or that part of the insurance law But to the general subject of health insurance I think we shall have to agree

In England the law has not been in force a sufficiently long time to form a fair estimate of its working value, but in the short time it has been in effect it is claimed that the average income of the physicians in England has materially increased In Germany, where it has been in effect a great many years, the law has materially benefited the medical profession It is claimed that the slums have disappeared, that sickness has materially diminished, and that the average life of the individual of Germany has increased from thirty-six to forty-eight years

Dr K A Zurawski It is not safe to leave legislation which concerns such a large amount of varied interests to self-appointed sociologic bodies The scheme of health insurance which Dr Evans has explained to us is a good example of how a thing should not be Health insurance should consider three different factors the employer, the employee and the medical man Medical men are not represented on these governing commissions, and this is a feature that we should try to correct We want to be full copartners in the administration of health insurance Another point the medical profession should insist on is free choice of medical attendants, but the choice of hospitals or the methods of treatment should not be left to the patient but to the medical man or to a commission of medical men

Dr Carl Beck Having seen some of the work of social insurance organizations in Germany and elsewhere, I can say that they have been unsatisfactory The medical profession in Germany is very much dissatisfied The *Munchener medizinische Wochenschrift* cautions physicians not to take this or that position as health insurance officer It is bad for the people and for the physician In some localities health insurance has done some good, while in others the effect has been the reverse We should study all angles of the question before securing legislation

Mr William Beye, Illinois Steel Company I do not believe that any legislation which destroys individualism is sound The scheme which is proposed is fundamentally state insurance It is the taking over by the state of private endeavor I believe that a man who cannot afford to insure himself in an insurance company or who does not himself provide protection against sickness should be an object of public charity Anything else is contrary to sound fundamental principles In West Virginia, Ohio, Washington and Wisconsin there have been insurance funds established for carrying insurance under the Workman's Compensation Law, and there is not a single fund in any of those states that is solvent, because government as it exists in this country cannot manage an insurance proposition on anything but a wasteful basis Let us consider health insurance as an indemnity after sickness has occurred It does not prevent sickness any more than life insurance prolongs life

Dr William D Pennington The cure for this condition lies in prevention and not in remedial legislation The way to cure this condition is to change the industrial situation, and that can be done only through legislation Following the procedures outlined reduces the people to a condition of semicharity If there is anything which people do not like, it is to feel that they have been forced to resort to charity for protection The way to solve this problem is by legislation that will make it possible to make an honest and comfortable wage The important field in medicine is not curative but preventive, and the way to cure this situation is to prevent it by enacting such laws and establishing such conditions as will make it possible for a man or woman who works in industrial institutions to make a living wage

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Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Anatomy, Philadelphia

January XXI No 1

1 Chromosomes of Human Spermatocytes H L Wieman Cincinnati —p 1
2 Changes in Composition of Entire Body of Albino Rat During Life Span S Hatai Philadelphia —p 23
3 *Experimental Studies on Origin of Vascular Endothelium and of Erythrocytes F P Reagan, Princeton, N J —p 39

3 **Origin of Erythrocytes and Vascular Endothelium** — Reagan summarizes the results of his extensive study briefly as follows first that mesenchyme in many regions of the body can turn into endothelium, and that endothelium is not an ingrowth from vessels on the yolk, second, that prevascular tissue can come from more than one germ layer, third that mesenchyme cells which can form a given type of blood cell are not confined to a narrowly limited region of the embryo, fourth, that endothelium can transform into blood cells

American Journal of Obstetrics and Diseases of Women and Children, York, Pa

January LXXV No 1

4 *Fibromyoma Uteri and Cardiovascular Disease B R McClellan Xenia Ohio —p 1
5 *Prolapse of Uterus in Nulliparous Women P Findley Omaha —p 12
6 *Radium—Palliative D C Moriarta Saratoga Springs —p 21
7 Standardization of Definite Procedures During Gynecologic Operations E A Weiss Pittsburgh —p 28
8 *Modified Gilliam Operation and Its Ultimate Results A Goldspohn Chicago —p 38
9 Shortening of Round Ligaments by Transverse Suprapubic Incision S Stark Cincinnati —p 47
10 Pathology of Major Vestibular Ducts and Glands J E Davis Detroit —p 58
11 Heat as Method of Treatment in Some Forms of Cavity Carcinoma J F Percy Galesburg —p 87
12 *Surgical Treatment of Uterine Cancer J H Jacobson Toledo —p 97
13 More Successful Surgery of Stomach G W Crile Cleveland —p 105
14 Applying Animated Drawing to Teaching of Surgical Technic W J Brownlow Cleveland —p 110
15 *Mechanics of Stomach After Gastro Enterostomy J H Jacobson and J T Murphy Toledo —p 112
16 Value of Pain Jaundice and Tumor Mass in Differential Diagnosis of Diseases of Right Upper Quadrant of Abdomen J D S Davis Birmingham, Ala —p 124
17 *Excessive Drainage Complicating Surgery on Common Bile Duc J E Sadlier Poughkeepsie, N Y —p 135
18 Three Cases of Successful Repair of Urinary Bladder Fistulae Following Operations J N West, New York —p 145
19 Pelvic Varicocele H D Furniss, New York —p 152

4 Abstracted in The Journal, Oct 21, 1916, p 1252

5, 6 and 8—Abstracted in The Journal, Oct 28, 1916, p 1325

12, 15 and 17 Abstracted in The Journal, Oct 28, 1916 p 1325

American Journal of Orthopedic Surgery, Boston

January XV No 1

20 *Analysis of Fifty One Bone and Joint Affections Treated by Heliotherapy, with Special Reference to Tuberculosis W C Campbell, Memphis, Tenn —p 1
21 Two Cases of Fracture of Neck of Femur in Childhood B H Whitbeck New York —p 17
22 Scoliosis E G Abbott, Portland Me —p 26
23 Atlo Axoid Disease Report of Two Cases Successful Operation in One J T Rugh, Philadelphia —p 51
24 Method of Marking Roentgen Plates I J Fassett Seattle —p 60
25 Apparatus for Extension Attached to Bradford Frame G L Bennett Baltimore —p 61

20 **Bone and Joint Affections Treated by Heliotherapy**—Campbell strongly endorses heliotherapy which in his experience has proved beneficial not only in tuberculous conditions but other affections especially acute sepsis

Archives of Internal Medicine, Chicago

January XIX No 1

26 *Clinical Value of Ambard s Coefficient of Urea Excretion D S Lewis Baltimore —p 1
27 *Action of Several Female Remedies on Strips of Excised Human Uterus J D Pilcher, Omaha —p 53
28 *Present Significance of Amino Acids in Physiology and Pathology D D Van Slyke New York —p 56
29 *Progressive Muscular Dystrophy as Endocrine Disease W Timme New York —p 79
30 *Blood Changes in Albino Rats Following Removal of Spleen C C Wolferth Philadelphia —p 105
31 Experiments on Origin and Conduction of Cardiac Impulse J A E Eyster and W J Meek Madison Wis —p 117
32 *Occurrence of Nuclear Changes in Red Blood Cells Following Splenectomy Q O Gilbert, Ann Arbor —p 140
33 *Effect of Heat and Continuous Incandescent Electric Light in Experimental Arthritis W E Simmonds and J J Moore Chicago —p 153
34 *Further Quantitative Study of Duodenal Blood Derived Pigments, J P Schneider Minneapolis —p 156

26 **Ambard's Coefficient of Urea Excretion**—The coefficient of urea excretion is subject to certain variations in normals but any value below 0 06 or above 0 09, Lewis says, should be regarded as abnormal unless the excessive variation can be readily explained The coefficient is absolutely independent of the blood urea concentration Its level is governed by the condition of renal function The *coefficient is depressed* in fever, in hyperthyroidism in hypertension with early changes in the renal arterioles, and in early chronic diffuse nephritis The depression is an evidence of increased renal activity due to irritation The coefficient is raised in *myxedema* There is an increase of the coefficient in myocardial insufficiency The coefficient is above normal in nephritis with renal insufficiency This increase is more evident in chronic diffuse nephritis than in the vascular type, due to the greater frequency of renal insufficiency in the former cases The coefficient shows an increase long before there is any evidence of nitrogen retention in the blood The coefficient gives an excellent means of following the changes in renal function and of measuring the rate of progress of the disease In a few severe cases the coefficient varies without there being any evident change in the clinical condition The prognostic value of the coefficient is considerable Values above 0 2 are seen only in the severe cases, while constants persistently above 0 3 are found only in persons with a maximal impairment of renal function A coefficient above 0 2 has a graver import in vascular nephritis than in that of chronic diffuse type For an accurate prognosis repeated determinations of the coefficient are of the greatest importance

27 **Action of "Female Remedies" on Strips of Human Uterus**—The action of pulsatilla unicorn root, blue cohosh blessed thistle viburnum, black haw and oil of valerian on strips of human uterus was studied by Pilcher It was found that pulsatilla, aletris and oil of valerian lowered the amplitude of the excursions or completely inhibited them, but the action was not so prompt or so great as on the guinea-pig uterus in the same concentration Caulophyllum put the strips into tonic contraction, but again the action was less than on the guinea-pig the tone was *not* increased above the maximum as was frequently the case with the guinea-pig *Cnicus benedictus* and viburnum were inactive

28 **Present Significance of Amino-Acids in Physiology and Pathology**—In examining both the urine and the blood from a considerable number of patients with toxemia of pregnancy Van Slyke found in no instance that either blood or urine showed an abnormal concentration of amino-acids or of intermediate protein digestion products Consequently, he says, the responsibility for the toxemias of pregnancy cannot be left with the amino acids He has also tested the hypothesis that acidosis is to blame, with essentially negative results

29 **Progressive Muscular Dystrophy**—Timme reports a somewhat atypical form of progressive muscular dystrophy rather resembling Erb s infantile type of extremely benign and slow progress It occurs as a hereditary affection, now in the fourth generation which has disabled fourteen individuals Of the seven living members with the disease, all but two have been examined thus far by Roentgen ray, and of these five, four show distinct changes in the pineal gland producing shadows in the roentgenogram The fifth, a youth of 15 years, whose affliction is rather of different type than the others in that the bony growth is abnormal shows an enlarged sella turcica, but no shadows in the pineal as yet Weighing all the evidence that is advanced by previous investigators to show derangement of the internal glandular balance in cases of progressive muscular dystrophy and giving due significance especially to the changes produced by tumors and diseases of the pineal gland on the various tissues of the body, changes that resemble in character if not entirely in degree or disposition those present in progressive muscular dystrophy Timme says we must admit the extreme probability of a causal relationship between the two If to this probability is adduced the evidence shown by cases of progressive muscular dystrophy of changes in the pineal gland demonstrated by roentgenology, the probability approaches pretty closely to proof that disturbances of the pineal gland play an important role in the pathogeny of progressive muscular dystrophy

30 **Blood Changes After Splenectomy**—Results of splenectomy were studied by Wolferth in sixteen rats whose spleens were presumably normal also in eight rats with enlarged spleens Rats after excision of a normal spleen showed a slight transient anemia, slight tendency to leukocytosis well marked increase in resistance of erythrocytes, no change in percentages of reticulated red cells There was an inconstant increase in the number of nucleated red cells during the periods of anemia Removal of enlarged spleens was followed by rapid and usually fatal anemia hyperleukocytosis marked increase in the number of nucleated and reticulated red cells and, in two cases by distinct jaundice

32 **Nuclear Changes in Red Blood Cells Following Splenectomy**—There can be little doubt, Gilbert says, that a close relationship exists between the loss of splenic function and the appearance of large numbers of nuclear particles in the blood The nuclear particles occur in large numbers within a few hours after the removal of the spleen, and they continue to be present after the blood has become in other respects normal That they occur independent of a primary blood disease is shown by the fact that they occur after the spleen has been removed in normal animals and in men (traumatic rupture of spleen) In no other conditions are they found with such constancy and in such large numbers as after splenectomy Gilbert's studies have shown, further that there is no definite numerical relationship between the nuclear particles and the presence of true nucleated red cells, or any other quantitative or qualitative changes in the peripheral blood His preparations indicate that the nuclear particles originate from otherwise normal nuclei, and that the particles do not show in themselves qualitative degenerative processes

33 **Effect of Heat and Light in Experimental Arthritis**—It is evident from the results of experiments made by Simmonds and Moore that the treated animals were decidedly benefited by heat and light so far as the arthritic manifestations were concerned

34 **Blood-Derived Pigments**—The blood in cases of pernicious anemia and hemolytic jaundice both before and after and with and without splenectomy was studied by Schneider

He found that splenectomy apparently immediately and permanently reduces the excessive blood-derived pigments of pathologic hemolysis to a normal level There is no proof that a recurrence of a pernicious blood and clinical picture after splenectomy is due to a reestablishment of excessive blood destruction A plus hematopoietic-hemolytic index in a given case should, he says, be regarded as one factor favorable to permanent postoperative recovery

Boston Medical and Surgical Journal

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35 Public Health Aspects of Leprosy G W McCoy, Washington, D C—p 43
36 Some Experience Bearing on Medicolegal Value of Precipitin Test for Human Blood E L Hunt and O M Mills, Worcester —p 48
37 Fibroma of Mediastinum, Report of Case S J Shen, Boston —*p 53*
38 Fundamental Considerations in Treatment of Psychoneuroses D Gregg Wellesley —p 57
39 *Coincidence of Diabetes Mellitus and Syphilis J H Barach Pittsburgh —p 58
40 Obliteration of Liver Dulness in Acute Perforation of Stomach and Duodenum Report of Case M T Field Salem —p 60
41 Study of Roentgenograms of Cases of Fracture of Long Bones at Massachusetts General Hospital R F Sheldon, Boston —p 61
42 Harvard Infantile Paralysis Commission and Its Work in Massachusetts R W Lovett Boston —p 62
43 *Unusual Case of Umbilical Hernia J W Lane Boston —p 64
44 Ringworm of Scalp and Alopecia Areata Appearing Simultaneously in Same Location J E Lane, New Haven Conn —p 65

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45 Duty of Health Departments in Alcohol Question H Emerson, New York —p 77
46 *Roentgenologic Follow Up Report of Seventeen Cases of Pylorectomy for Ulcer J H Lindsey Fall River —p 80
47 Obstetric Advances J O Polak, Brooklyn —p 85
48 Coefficient of Safety in Surgical Operations H L Smith, Nashua, N H —p 88
49 Some Limitations in Roentgen Ray Evidence of Gastro Intestinal Lesions F W White Boston —p 92
50 *Three Cases of Thyroid Abscess F H Lahey, Boston —p 94
51 Anatomic Factor as Cause of Pyorrhea C M Cobb Lynn — —*p 95*
52 *Sterilization Treatment of Furunculosis J T Bowen Boston — p 96
53 Treatment of Perforated Ulcer of Stomach with Duodenal Feeding Tube L C Miller, Worcester —*p 97*

39 **Diabetes Mellitus and Syphilis**—Three cases of syphilis, in which the *Spirochaeta pallida* is active and in which the clinical symptoms of diabetes mellitus appeared, are recorded by Barach as occurring among thirty-one cases of diabetes seen within a period of two and one-half years Such cases are supposed to be rare and the relationship of these two diseases is not generally recognized

43 **Unusual Case of Umbilical Hernia**—Lane's patient had suffered for several years from a small incarcerated umbilical hernia The present illness for which she sought aid was ushered in by a severe pain in the mass at the umbilicus This pain persisted three days, when it suddenly ceased During this time the patient vomited nearly twenty times, but whether the vomiting was fecal, was not known On the evening of the second day the vomiting ceased and there were several evacuations of the bowels following a dose of citrate of magnesia On the third day a redness and tenderness appeared about the umbilicus and the hernial mass disappeared On the fourth day the area of redness had extended, and was very much more tender The physical examination was generally negative except for the abdomen The abdomen was somewhat obese and was not distended, but lax and tympanitic These was no protrusion at the umbilicus, but the depression thereof was unusually large and surrounded by an area of redness and tenderness and induration about 6 inches in diameter

An operation was advised and performed At a depth of 1½ inches in the fat about 2 ounces of foul smelling pus were evacuated The pus had an odor characteristic of an appendix abscess After the excess pus had been wiped out there appeared in the upper end of the wound a red mass about the size of a lemon This appeared to be the sac of a hernia with a rent about ½ inch in diameter In the left lower border protruding from this rent was a piece of animal bone, 1⅞ inches long and ⅜ inch wide A piece of small intestine was strangulated in the sac, reddened but not gangrenous, and showing a perforation of ¼ inch in diameter, with its mucous membrane everted

46 **Roentgenologic Report of Cases of Pylorectomy for Ulcer**—Nineteen cases of pylorectomy for ulcer are included in Lindsey's report, with roentgenographic study of seventeen There is prima facie evidence in this series that the stomach, after pylorectomy, tends to enlarge or dilate and thus compensates for the part removed at operation In some cases, in which a wide resection has been performed, the stomach does not seem to have much opportunity or occasion to dilate From the clinical information given all of these patients, with the exception of two, seemed in good condition In general, the efficient manner in which these stomachs have performed their function, at such long periods after operation, testifies to the essential conservatism of an apparently radical operation

50 **Diagnosis of Thyroid Abscess**—Two signs which Lahey found to be present in his three cases are limitation of chin elevation and depression of the chin on the sternum when swallowing These two signs, he believes, are of great significance in cases suspected of thyroid abscess They are brought about by the action of the sternohyoid, sternothyroid and omohyoid muscles on the abscess beneath them Pain results from tightening of these muscles, and this tightening as the result of swallowing may be prevented by depression of the chin on the sternum

52 **Sterilization Treatment of Furunculosis**—The principle of this treatment is simply to keep the skin so far as possible sterile, as free from micro-organisms as it is endeavored to maintain it in abdominal surgery In order to effect this, the patient is directed to take a hot bath morning and night, scrubbing the whole body, including the head, while in the bath with soap After this thorough washing with soap and hot water, the skin is dried, and the whole surface again bathed, this time with a saturated solution of boric acid in water, with the addition perhaps of a small proportion of camphor water After bathing thoroughly with the saturated boric acid solution, the skin is allowed to dry Then the individual furuncles are treated by dressing them with the following ointment spread on cotton or linen and bound lightly on

		gm or c.c	
℞	Boric acid	4	ʒ i
	Precipitated sulphur	4	ʒ i
	Carbolated petrolatum	32	℥ i

This procedure is repeated morning and night Every stitch of linen worn next to the skin should be changed daily, and in the case of extensive furunculosis all the bed clothing that touches the individual, as well as the night clothing, should be subjected to a daily change This treatment has been uniformly successful in Bowen's hands in the treatment of furunculosis

Iowa State Medical Society Journal, Des Moines

January VII No 1

54 *Uremia L G Rowntree, Minneapolis —p 1
55 Renal Sufficiency Tests C Van Epps Iowa City —p 5
56 Internal Secretory Organs C Stutsman, Burlington —*p 9*
57 Pyloric Obstruction in Infancy C A Waterbury, Waterloo — p 15
58 Rupture of Intestine Due to Abdominal Trauma Report of Cases W S Conkling, Des Moines —p 20
59 Submucous Resection of Nasal Septum W E Patterson, Waterloo —p *24*

54 **Uremia**—According to the predominance of functional or organic changes, Rowntree points out that it is extremely important to recognize whether the case is one in which the uremia is due to organic or functional changes The development of uremia in a case of marked chronic interstitial nephritis offers little in a permanent way as a result of treatment, whereas in an identical clinical picture encountered in back pressure kidney such as seen in cases of enlarged prostate, the prognosis may be good This is familiar to the surgeon but not as a rule to the internist Rowntree refers to instances in which following the use of the constant catheter, forcing of fluids, and limitation of nitrogen intake

uremia has disappeared and in some instances, following a subsequent prostatectomy, renal function has returned practically to normal In the vast majority of cases the treatment adopted is based on the theory of retention of products of metabolism When edema of the brain is present the question of mechanical relief of cerebral pressure may need to be considered Lumbar puncture may be of the greatest value in cases with marked headache dependent on cerebrovascular changes If acidosis coexists alkalies should be administered but only to the point of correcting the acidosis not indiscriminately in all cases of uremia nor in the large amounts recently advocated In every case of uremia it is the physician s duty to determine if possible the underlying cause and to treat the case accordingly

Journal of Abnormal Psychology, Boston

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60 Persistent Complexes Derived Through Free Associations C S Yoakum and M C Hill Galveston —p 215
61 Developmental Psychology of Stuttering W B Swift, Boston —p 258
62 Some Psychanalytic Studies of Character L E Emerson Boston —p 265

Journal of Biological Chemistry, Baltimore

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63 Impure Picric Acid as Source of Error in Creatin and Creatinin Determinations O Folin and E A Doisy Boston —p 349
64 Estimation of Amino Acid Nitrogen in Blood J C Bock New York —p 357
65 *Comparative Biochemistry of Purin Metabolism Presence of Allantoin in Mammalian Blood A Hunter Toronto —p 369
66 *Iodin Content of Food Materials R M Bohn Madison Wis —p 375
67 Colorimetric Methods for Determining Serum Cholesterol P G Weston Warren Pa —p 383
68 Mode of Action of Urease and of Enzymes in General K. G Falk New York —p 389
69 Id D D Van Slyke and G E Cullen New York —p 391
70 Influence of Coagulation by Rennin on Gastric Digestion of Milk Proteins J T Leary and S H Sheib Nashville Tenn —p 393
71 Preparation of Guanidin J S Sharpe Glasgow —p 399
72 Proteins of Central Nervous System H H McGregor Urbana, Ill —p 403
73 Influence of Inosite on Excretion of Phenol in Dog H Dubin Philadelphia —p 429
74 *Studies of Infant Feeding Chemical Changes Produced by Addition of Lime Water to Milk A W Bosworth and H I Bowditch Geneva N Y —p 431
75 Saponin from Yucca Filamentosa L H Chernoff A Viehoever and C O Johns Washington D C —p 437
76 New Method of Steam Distillation for Determination of Volatile Fatty Acids Including Series of Colorimetric Qualitative Reactions for Their Identification D C Dyer Washington D C —p 445
77 Mechanism of Cytolysis in Sea Urchin Eggs A R Moore New Brunswick N J —p 475
78 Is Lysin Limiting Amino Acid in Proteins of Wheat Maize or Oats? E V McCollum N Simmonds and W Pitz Madison Wis —p 483
79 Efficiency of Certain Milk Substitutes in Calf Feeding R H Carr G Spitzer R E Caldwell and O H Anderson La Fayette Ind —p 501
80 *D Mannoketoheptose New Sugar from Avocado F B La Forge Washington D C —p 511
81 Crystallographic and Optic Properties of Mannoketoheptose and of Osazones of Mannoketoheptose and Mannoaldoheptose F E Wright Washington D C —p 523

65 **Allantoin in Blood** —From the blood of the ox and the pig allantoin was obtained by Hunter in quantity sufficient for positive identification while its presence in that of the horse and the sheep was rendered practically certain Human blood on the other hand yielded no evidence of containing even a trace of allantoin

66 **Iodin Content of Food Materials** —It would appear from Bohn s studies that the presence of iodin in feeding materials of vegetable origin is accidental and serves no necessary nutritive function in the plant

74 **Infant Feeding Chemical Changes Produced by Addition of Lime Water to Milk** —The addition of lime water to milk which normally contains some insoluble dicalcium phosphate Bosworth and Bowditch found results in the precipitation of more calcium phosphate, the insoluble phosphates under these conditions being a mixture of dicalcium and tricalcium phosphate, $CaHPO_4$ and $Ca_3P_2O_8$ The addition of lime water to milk brings the reaction of the serum toward the neutral point, the soluble alkalinity of the lime water being used up in the precipitation of the insoluble calcium phosphates mentioned above When milk to be used for infant feeding is treated with lime water and finally diluted to such an extent that it has twice the volume of the original milk or more the soluble calcium and phosphorus may be reduced to amounts less than those which are present in human milk

80 **D-Mannoketoheptose, New Sugar from Avocado** —La Forge describes the isolation of a new ketose sugar containing seven carbon atoms from the fruit of avocado or alligator pear The sugar exists in the free state in the fruit The new sugar is both a ketose and a heptose and is accordingly the fourth natural ketose to be isolated the other three being fructose sorbose and ketoxylose and is the first heptose to be found in nature the previously known heptoses having all been prepared synthetically from hexoses

Journal of Laboratory and Clinical Medicine, St Louis

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82 Experimental Investigation of Certain Phenomena Relating to Action of Drugs on Rate of Oxygen Consumption in Animal Body D E Jackson St Louis —p 145
83 *Tissue Reactions to Various Products of Tubercle Bacillus P F Morse and E Stott Detroit —p 159
84 *Tonsillectomy During Course of Acute Rheumatic Fever R S Morris Cincinnati —p 168
85 *Bacteriemias in Agonal Period J W Fredette Pittsburgh —p 180
86 Diagnosis of Gastric Ulcer J W Shuman Sioux City Iowa —p 189
87 Detection of Semen V C Vaughan Ann Arbor Mich —p 195
88 Trypsin Broth—Ideal Medium for Making Blood Cultures R G Owen F A Martin and W G Pitts Detroit —p 198
89 Standard Method for Making Uniform Colloidal Gold Solution W K Trimble Kansas City Mo —p 199
90 Preservation of Erythrocytes for Wassermann Reaction S P Reimann Cleveland —p 200
91 Simplified Complement Fixation Test N E Williamson Stockton, Calif —p 202
92 Modification of Gerhardt s Test for Diacetic Acid in Urine H P Barret Charlotte N C —p 203
93 Prevention of Frothing in Aeration Methods A B Denison, Cleveland —p 204

83 **Tissue Reactions to Products of Tubercle Bacillus** — The tubercle bacillus according to Morse and Stott produces a microscopically characteristic lesion not because it is a living particulate protein, but because its waxy substances act as a peculiar type of foreign body

84 **Tonsillectomy During Acute Rheumatic Fever** —With the subsidence of outward evidence of acute inflammation of the tonsils Morris says the danger of allowing them to remain in the body probably exceeds the danger of their removal In all cases he believes an attempt should be made to relieve the joint tenderness by full doses of salicylates, before the operation is attempted A certain amount of freedom of movement is necessary after the operation, to enable the patient to expectorate etc , during the height of an acute arthritis, pain on moving would often prevent the necessary changes in position

85 **Bacteriemias in Agonal Period** —Routine blood cultures taken by Fredette immediately after the death of 119 individuals reveal the presence of an unsuspected bacteremia in about one third of all fatal cases Streptococci are the most frequent terminal bacterial invaders of the blood stream The pneumococcus can be isolated in practically all cases of lobar pneumonia dying before the tenth day of the disease

Journal of Nervous and Mental Disease, Lancaster, Pa

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94 *Histopathology of Autonomic Nervous System in Certain Somatic and Organic Nervous Diseases M E Morse Boston —p 1
95 Relation between Overactivity of Vagus System and Anaphylaxis J H Smith Richmond Va —p 26
96 Dispensary Work in Diseases of Nervous System S E Jelliffe New York —p 46

94 **Histopathology of Autonomic Nervous System** —The thoracicolumbar semilunar and intestinal ganglia in seventeen cases were studied by Morse in connection with the central nervous system and the ductless glands The cases

comprise two each of pellagra, senile dementia, paresis, cerebral syphilis, generalized (including cerebral) arteriosclerosis and one each of pernicious anemia, imbecility plus mitral insufficiency, dementia praecox plus lobar pneumonia, alcoholic dementia and generalized tuberculosis, manic depressive insanity and carcinoma of stomach, involutional depression and katatonic "hirntod" In no instance were the ganglia normal In the cerebral syphilis cases, however, the changes were rather insignificant The conditions found are grouped as acute and chronic degenerative changes in the nerve cells, and exudative manifestations in the stroma Chronic degenerative changes in the ganglion cells predominated, as would be expected, in the chronic organic nervous diseases (paresis, senile dementia and cerebral arteriosclerosis) They were also found in ganglia in the vicinity or organs showing chronic lesions Acute changes predominated in the case of katatonic "hirntod" (brain death), and in the local ganglia in certain pathologic conditions, as valvular heart disease and acute enteritis and peritonitis Both acute and chronic conditions and those which might be either, as axonal reaction and neurophagia were present in pellagra, pernicious anemia, tuberculosis and involutional depression A point of interest and importance is the special incidence of lesions in the ganglia, and their possible correlation with adjacent visceral conditions In several instances the lesions were not universally distributed, but were limited to ganglia in the vicinity of affected structures In an agitated depression changes suggestive of fatigue processes were found in the thoracicolumbar chain of ganglia, and in a case of katatonic "hirntod" marked lesions of an acute degenerative type, associated with neurophagia

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108 **Benzoate of Mercury in Treatment of Syphilis**—The preparation which Lautman employs is an oily emulsion of ten parts of mercury benzoate and two parts of quinin and urea hydrochlorid in one hundred parts of white liquid petrolatum It is prepared by first grinding up the quinin and urea hydrochlorid with a little of the oil in a mortar and then adding with careful trituration small quantities of the benzoate and oil A perfect emulsion is obtained, which can easily be aspirated through a twenty-gage needle The method of injection is the same as with any other preparation of mercury Lautman gives 1 grain of the benzoate (10 minims) at a dose, repeating this three times a week In twenty-five unselected and previously untreated cases the blood Wassermann was changed from a four plus to a negative in an average of eight weeks The influence on the existing lesions was very favorable

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179 Prostatectomy Clinical Study of Fifty Cases with Particular Reference to Postoperative Treatment W B Dakin, Los Angeles —p 120
180 Central Eyed Needle in Surgery P P Cole, London —p 122

160 **Removal of Stones from Kidney**—From Jan 1, 1898, to Dec 31, 1915, 450 patients with stone in the kidney were operated on in the Mayo Clinic (484 operations) Three died, a mortality of 0 6 per cent This percentage represents the number of patients who died in the hospital without regard to cause of death or length of time after operation Mayo says that the results achieved were due more to the painstaking care with which the diagnoses were made, the function of the kidney estimated, and the patients prepared for operation, than to any purely technical feature of the procedures employed in removing the stones The presence of the stones was shown by the roentgenogram By means of the pyelogram the urologist was able to say with certainty whether the stone was in the pelvis calyx, or parenchyma of the kidney Forty-eight patients (99 per cent) had stones in both kidneys In these cases, the second kidney was found pyonephrotic a condition necessitating nephrectomy In three instances stones were found in a single kidney and in two instances in a horseshoe kidney The condition was diagnosed before operation as nephrolithiasis in an anomalous kidney In one case of horseshoe kidney the stone had caused a pyonephrosis in the left half This portion of the kidney was resected and recovery followed Renal stones were found in two patients with duplication of the renal pelves In both, the caudal pelvis was involved, in one a pelviolithotomy sufficed but in the other a resection of the upper half of the kidney was necessary

There were two cases of stones in the remaining kidney after nephrectomy Multiple stones in the parenchyma of the kidney are prone to recur In one case in which Mayo removed twenty-eight stones from one kidney and twenty-six from the other, he reoperated on the patient within two years for stones in both kidneys The following operations were performed pelviolithotomy, 206 cases, combined pelviolithotomy and nephrolithotomy, 34 cases, nephrolithotomy, 40 cases and nephrectomy, 204 cases

164 **Hematocolpos in Woman of Seventy-Four**—In a woman of 74 who had menstruated normally until thirty-five years previously, severe pain, pointing to obstruction of the urinary flow, led to the detection of a large fluctuating tumor which filled the entire plevis and extended upward almost to the umbilicus The vagina was occluded by senile atresia Laparotomy in spinal anesthesia revealed the tumor to be an enormous hematometra and hematocolpos with bilateral hematosalpinx Panhysterectomy was performed successfully by Gellhorn, and the tumor, which was connected with the vagina only by loose connective tissue was removed unopened Convalescence was undisturbed, the patient left the bed on the twelfth day after operation but succumbed to an embolism on the fifteenth day The cause of bleeding into the occluded genital tract was an adenocarcinoma of the body of the uterus

169 **Differential Diagnosis of Pyuria**—If urine is not obtained by ureteral catheterization the catheter is withdrawn from the ureter, and a second catheter passed In the event of persistent failure of urinary flow, an empty Luer syringe is applied to the large end of the ureteral catheter which had been used first, and the catheter contents are forced out on a glass side Curtis says that examination of this material yields a diagnosis in most '*dry tap*' *pus infection* cases Usually there is considerable stringy mucoid material in addition to other pathologic constituents This procedure has several times clinched a diagnosis when it would otherwise have been impossible, or possible only by exclusion

170 **Hemostasis by Interposition of Muscle, Fat and Fascia**—Risley reports the results of experimental work on the use of these tissues in stopping hemorrhage in such organs as the kidney and liver, when other forms of hemostasis are either impossible or undesirable The interposed tissue is taken from the patient s own body at the time of operation

comprise two each of pellagra, senile dementia, paresis, cerebral syphilis, generalized (including cerebral) arteriosclerosis and one each of pernicious anemia, imbecility plus mitral insufficiency, dementia praecox plus lobar pneumonia, alcoholic dementia and generalized tuberculosis, manic depressive insanity and carcinoma of stomach, involutional depression and katatonic "hirntod" In no instance were the ganglia normal In the cerebral syphilis cases, however, the changes were rather insignificant The conditions found are grouped as acute and chronic degenerative changes in the nerve cells, and exudative manifestations in the stroma Chronic degenerative changes in the ganglion cells predominated, as would be expected, in the chronic organic nervous diseases (paresis, senile dementia and cerebral arteriosclerosis) They were also found in ganglia in the vicinity or organs showing chronic lesions Acute changes predominated in the case of katatonic 'hirntod" (brain death), and in the local ganglia in certain pathologic conditions, as valvular heart disease and acute enteritis and peritonitis Both acute and chronic conditions and those which might be either, as axonal reaction and neurophagia were present in pellagra, pernicious anemia, tuberculosis and involutional depression A point of interest and importance is the special incidence of lesions in the ganglia, and their possible correlation with adjacent visceral conditions In several instances the lesions were not universally distributed, but were limited to ganglia in the vicinity of affected structures In an agitated depression changes suggestive of fatigue processes were found in the thoracicolumbar chain of ganglia, and in a case of katatonic 'hirntod" marked lesions of an acute degenerative type, associated with neurophagia

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170 *Hemostasis by Interposition of Muscle Fat and Fascia in Parenchymatous Organs. E H Risley Boston —p 85
171 Advantage of Pleural Effusion in Giant Hydatid Cysts of Liver J A Wall, Santiago, Chile —p 90
172 Significance of Bladder Symptoms in Diagnosis of Renal Disease A J Crowell, Charlotte, N C —p 91
173 Clinical Course of Cancer in Light of Cancer Research H R Gaylord Buffalo —p 94
174 Constitutional Factor in Gynecology and Obstetrics C P Noble Philadelphia —p 98
175 Treatment of Infected Gunshot Wounds J R Eastman, Indianapolis —p 108
176 *Reestablishing Patency of Ureter in Pyonephrosis by Catheter M Molony San Francisco —p 111
177 Enteroplasty for Relief of Sigmoid Obstruction W F Fowler Rochester, N Y —p 113
178 Intranasal Treatment of Frontal Sinusitis R H Good, Chicago —p 115
179 Prostatectomy Clinical Study of Fifty Cases with Particular Reference to Postoperative Treatment W B Dalin Los Angeles —p 120
180 Central Eyed Needle in Surgery P P Cole, London —p 122

160 **Removal of Stones from Kidney**—From Jan 1, 1898, to Dec 31, 1915, 450 patients with stone in the kidney were operated on in the Mayo Clinic (*484 operations*) Three died, a mortality of 0 6 per cent This percentage represents the number of patients who died in the hospital without regard to cause of death or length of time after operation Mayo says that the results achieved were due more to the painstaking care with which the diagnoses were made, the function of the kidney estimated, and the patients prepared for operation, than to any purely technical feature of the procedures employed in removing the stones The presence of the stones was shown by the roentgenogram By means of the pyelogram the urologist was able to say with certainty whether the stone was in the pelvis calyx, or parenchyma of the kidney Forty eight patients (9 9 per cent) had stones in both kidneys In these cases, the second kidney was found pyonephrotic, a condition necessitating nephrectomy In three instances stones were found in a single kidney and in two instances in a horseshoe kidney The condition was diagnosed before operation as nephrolithiasis in an anomalous kidney In one case of horseshoe kidney the stone had caused a pyonephrosis in the left half This portion of the kidney was resected and recovery followed Renal stones were found in two patients with duplication of the renal pelves In both, the caudal pelvis was involved, in one, a pelviolithotomy sufficed but in the other a resection of the upper half of the kidney was necessary

There were two cases of stones in the remaining kidney after nephrectomy *Multiple stones in the parenchyma* of the kidney are prone to recur In one case in which Mayo removed twenty-eight stones from one kidney and twenty-six *from the other, he reoperated on the patient within two years* for stones in both kidneys The following operations were performed pelviolithotomy, 206 cases, combined *pelviolithotomy and nephrolithotomy*, 34 cases, nephrolithotomy, 40 cases and nephrectomy, 204 cases

164 **Hematocolpos in Woman of Seventy-Four**—In a woman of 74 who had menstruated normally until thirty-five years previously, severe pain, pointing to obstruction of the urinary flow, led to the detection of a large fluctuating tumor which filled the entire plevis and extended upward almost to the umbilicus The vagina was occluded by senile atresia Laparotomy in spinal anesthesia revealed the tumor to be an enormous hematometra and hematocolpos with bilateral hematosalpinx Panhysterectomy was performed successfully by Gellhorn, and the tumor, which was connected with the vagina only by loose connective tissue, was removed unopened Convalescence was undisturbed, the patient left the bed on the twelfth day after operation but succumbed to an embolism on the fifteenth day The cause of bleeding into the occluded genital tract was an adenocarcinoma of the body of the uterus

169 **Differential Diagnosis of Pyuria**—If urine is not obtained by ureteral catheterization the catheter is withdrawn from the ureter, and a second catheter passed In the event of persistent failure of urinary flow, an empty Luer syringe is applied to the large end of the ureteral catheter which had been used first, and the catheter contents are forced out on a glass side Curtis says that examination of this material yields a diagnosis in most "dry tap' pus infection cases Usually there is considerable stringy mucoid material in addition to other pathologic constituents This procedure has several times clinched a diagnosis when it would otherwise have been *impossible*, or possible only by exclusion

170 **Hemostasis by Interposition of Muscle, Fat and Fascia**—Risley reports the results of experimental work on the use of these tissues in stopping hemorrhage in such organs as the kidney and liver, when other forms of hemostasis are either impossible or undesirable The *interposed tissue is* taken from the patient's own body at the time of operation

Muscle tissue is the ideal hemostatic In order most effectively to stimulate fibrin formation it should be cut jaggedly with a knife and not crushed as with a scissors cut, nor should its hemostatic properties be extracted by its contact with salt solution Fascia and fat act to a more limited degree as hemostatics, fascia more than fat, but both very much less than muscle In the liver, however, both fascia and fat seem at times to be very efficient hemostatics These tissues readily unite to the bleeding surface to which they are sewed and form a smooth, solid scar Microscopic examination of specimens removed at varying intervals after operation show in Risley's series absence of sepsis, a beginning transformation of muscle into fibrous tissue, a partial absorption of fat and change into fibrous tissue, no change in fascial transplants, in practically every case a firm blending of the interposed tissue with the cut surface of the parenchymatous tissue, the formation of new blood channels and no degenerative changes of any note

176 **Reestablishing Patency of Ureter in Pyonephrosis**—In Molony's case a catheter was passed into the kidney with the aid of the cystoscope and brought out through a nephrostomy wound in the loin To the point of this was sewed a No 11 catheter After removing the cystoscope, traction was made on the small catheter bringing the large one down through the kidney and bladder and out through the urethra The catheter was drawn out as far as possible so that the largest diameter of it was in the pelvis and upper portion of the ureter Six or 8 inches of the tip of the catheter were cut off close to the urethra and a strong plaited silk ligature was attached to the cut end By pulling on the upper end in the wound the lower end was drawn up into the bladder with the plaited silk ligature hanging out through the urethra This piece of silk ligature caused no irritation in the urethra, it also gave control from both ends when it was necessary to move the catheter up or down and adjust the lower end of it so as not to irritate the neck of the bladder The catheter in the kidney, the ureter and bladder caused no inconvenience whatever, and the bladder was irrigated with solutions daily by inserting the nozzle of an irrigator into the upper end of the catheter projecting out of the wound The large catheter was changed every few days by inserting an extra long wire stilet through it, withdrawing the catheter and inserting a fresh one over the stilet The catheter was removed after three weeks The patient increased in weight and vigor and was able to go about soon after the catheter was removed By inserting the nozzle of an irrigator into the fistula, a pint of solution could be run through into the bladder in a few minutes, thus proving the patency of the ureter

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FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

Archives of Radiology and Electrotherapy, London

December 1916 XXI No 7

1 Roentgen Ray Appearances in Gas Gangrene A Small—p 201
2 Recognition of Gas within Tissues H M Berry—p 213
3 Sarcoma and Roentgen Rays G F Gaarenstroom—p 220

British Medical Journal, London

December 30 1916 II No 2922

4 Bacillemia Due to Infection with B Fecalis Alcaligenes C H Shearman and T G Moorhead—p 893
5 *Cytologic Examination of Joint Fluid as Aid to Prognosis in Penetrating Gunshot Wound of Knee W S Lazarus Barlow—p 895
6 Psychanalysis C A Mercier—p 897
7 Certain Points Observed with Regard to Cerebrospinal Fever in Belfast Military District W J Wilson, R B Purce and G Darling—p 900

5 **Cytologic Examination of Joint Fluid**—Starting from the point that normal synovial fluid of the knee joint is acellular, Lazarus-Barlow says that when gunshot injury occurs and hemorrhage takes place into the synovia the ratio of leukocytes to erythrocytes found immediately must be that of normal blood, say, one leukocyte to 500 red cells With the subsequent migration of leukocytes due to inflammatory reaction the number of white cells goes up Thus he has notes of cases in which the ratios of leukocytes to red blood corpuscles were 3 500, 5 500, 9 500 25 500, 50 500, 70 500, 125 500, 1,000 500 Further, normal blood contains roughly 70 per cent polynuclears, 30 per cent mononuclears, and the leukocytes found in the mixture of synovial fluid and blood immediately after the injury must be present in these ratios If the subsequent migration of leukocytes be called forth by an "aseptic irritant" the ratio will remain unchanged or the percentage of mononuclears may ever increase If the migration be called forth by a "bacterial irritant" the polynuclear percentage will increase Hence, if a sample of knee joint fluid removed from a patient in a hospital shows, for example, 500 reds to five whites, and a differential count of the whites shows 50 per cent polynuclears and 50 per cent mononuclears, it differs fundamentally from another sample showing, for example one red to four white, when the whites on differential counting are 99 per cent polynuclears and only 1 per cent mononuclears The case from which the first sample was taken is clearly one in which infection is absent or negligible, the second is one in which it has undoubtedly occurred In all Lazarus-Barlow has examined fluids and given prognoses in eighty-nine cases

Indian Journal of Medical Research, Calcutta

October 1916 IV No 2

8 Tests for Certain Narcotic and Anesthetic Drugs E H Hankin—p 237
9 Epidemiology of Malaria Fever in Malay Peninsula C Strickland—p 256
10 New Species of Protanopheline from Malaya Myzorhynchus Hunteri C Strickland—p 263
11 Umbrosus Like Anopheline from Malaya—Myzorhynchus Novumbrosus C Strickland—p 271
12 Investigation into Ankylostome Infection in Eleven Thousand Inhabitants of Darjeeling District of India C Lane—p 274
13 *Gland Index in Tuberculosis A Lankester—p 285
14 Some Facts Relating to Birth and Marriage Rates Among Brahmins W F Harvey—p 303
15 Birth Rates, Marriage Rates Fertility and Proportionality of Sexes at Birth Among Some Fighting Indian Communities W F Harvey—p 313
16 Effect of Inoculating Rabbits with Cholera Vaccine Prepared in Various Ways C J Fox—p 335
17 Scurvy in Zhob, Baluchistan A L Sheppard—p 340

13 **Gland Index in Tuberculosis**—There is abundant pathologic evidence to prove the frequency of enlargement of the bronchial and cervical glands in small children in cases of early pulmonary tuberculosis, and also as a primary manifestation of the disease in cases in which the lungs have not been affected It would seem probable, moreover, both on clinical and pathologic grounds, that tuberculous infection in small children tends to enter the system via the upper part of the alimentary canal, the mouth, tonsils, fauces, etc, rather than through the respiratory tract This would explain the frequency with which children exposed in their homes to infection from consumptive parents are found to suffer from tuberculous cervical glands During the course of Lankester's investigation it was a constantly recurring experience to obtain from schoolchildren, showing glandular enlargement in a marked degree, the clearest possible recent history of tuberculosis contact No prolonged examination of individual cases was made, the children were placed in lines and examined in succession by the two hands, one on each side of the neck The submaxillary and cervical regions alone were palpated and all cases were marked as negative in which enlargement of the lymphatic glands was not instantly apparent It was found that after the age of 12 years the percentage of cases of enlarged glands rapidly declined, showing that the enlargement itself is in most cases—whatever be its cause—of a temporary nature The percentage of such cases among about 240,000 children examined in 1913, was 10 5 falling to 8 8 in 1914

Journal of Laryngology, Rhinology and Otology, London

December 1916 XXVI No 12

18 Etiology and Pathogenesis of Otogenic Sinusphlebitis H Mygind—p 497
19 Choanal Polypus W S Syme—p 515
20 *Case of Herpes Zoster Oticus A Ryland*—p 518
21 Von Bezold's Mastoiditis H L Whale—p 520

Journal of Tropical Medicine and Hygiene, London

December 15, 1916 XIX No 24

22 Meteorology of Malaria M D O'Connell—p 285

Lancet, London

December 30, 1916 II No 4870

23 Hygienic Lessons of War H R Kenwood—p 1083
24 Legends and Lore of Genesis of Healing Art R Crawfurd—p 1086
25 Warfare on Brain E F Buzzard—p 1095
26 *Plant Hairs as Pseudoparasites R Donaldson and R C McLean—p 1100
27 Outbreak of Cerebrospinal Meningitis T D Halahan—p 1102

26 **Plant Hairs as Pseudoparasites**—An examination of the stools of a patient admitted to the hospital on account of diarrhea revealed the presence of large numbers of bodies which at the first glance resembled ancylostoma, and in addition small bladder-like structures The former had a hooked pointed tip, while the other end, which was somewhat expanded, showed the presence of small spines The whole appearance suggested the male form of ancylostoma The size, however, was entirely against its being such, the largest being roughly 300 microns Moreover, no oral aperture and no evidence of any internal organs could ever be detected and no ova could be found The patient's blood while showing a slight degree of anemia, gave no evidence of eosinophilia A consideration of the foregoing facts pointed to the bodies as being plant hairs, and after further investigation they were identified as the grapnel hairs of the common runner bean

Practitioner, London

January XCVIII No 1

28 Twilight Sleep H Croom, H Williamson, C Berkeley and J S Fairbairn—p 1
29 Treatment of Placenta Praevia J B Hellier—p 25
30 Some Experiences in Local Anesthesia B P Campbell—p 30
31 Anatomic Relations of Optic Nerves and Chiasma to Sphenoid Bone G F C Wallis—p 41
32 Ultraviolet Light in Medicine and Surgery F S Hawks—p 53
33 Diagnosis in Cases of Massive Splenomegaly G Ward—p 62
34 Beriberi G M Findlay—p 69
35 Difficult Dislocations in General Practice W Paulson—p 79
36 Galvanometric Diagnosis and Dielectric Therapy G Mahomed—p 81
37 Case of Traumatic Winged Scapula S H Bennett—p 85
38 Case of Egg Poisoning and Asthma H S Palmer—p 88

Paris Medical

December 9 1916 VI No 50 pp 513 528

39 Primary Infectious Febrile Jaundice (L'ictere infectieux primitif a phenomenes generaux predominants) M Garnier—p 513
40 *Benefit from Intravenous Vaccine Therapy of Typhoid (Vaccinotherapie de la dothienenterie) M Petzetakis—p 516
41 Skull Wounds from Small Scraps of Shells (Les lesions du crane par petits eclats d'obus, leurs complications) A Martin—p 521
42 Displacement of the Carpus with Fracture of the Radius (Subluxation en avant et en dehors du carpe gauche avec fracture cuneenne externe du radius et fracture de la base de l'apophyse styloide du cubitus) A Mouchet and R Toupet—p 526

December 23 No 52 pp 545 560

43 *Attenuated or Latent Forms of the Myocarditic Syndrome in Cervicosciatic Rheumatism P Nobecourt and Peyre—p 545
44 Treatment in the Field Hospitals at the Front of Wounds of the Soft Parts (Traitement des plaies des parties molles dans les ambulances de l'avant.) A Schwartz—p 546
45 *Sign of Glossopharyngeal Paralysis M Vernet—p 551
46 Simplified Technic for Quantitative Test for Sugar (Dosage du glucose) P Vansteenberghe and L Bauzil—p 556

40 **Vaccine Therapy of Typhoid**—Petzetakis reports in detail two cases of typhoid in which vaccine therapy was applied by the intravenous route, without any other measures The patients were men of 23 and 30 and the fever subsided, in both, the first or second day after the first or second intravenous injection of the vaccine Similarly prompt results were obtained in five cases of typhoid in another's service, given the intravenous treatment The charts show the unmistakable influence on the fever from the vaccine given the eighth and thirteenth day in one case and the tenth day in the other

43 **Attenuated Myocarditic Symptoms with Sciatic Neuralgia and Cervical Rheumatism**—Nobecourt and Peyre have encountered a number of cases in soldiers in which sciatica and meningeal reactions, manifest in the cerebrospinal fluid, were accompanied by rheumatic disturbances in the neck and dilatation of the heart without other symptoms of latent myocarditis Such cases are usually labeled cerebrospinal meningitis at first but this is rendered untenable by the rapid improvement under rest in bed, lumbar puncture and sodium salicylate No symptoms attract attention to the heart but it will be found enlarged and the patient should be given a leave of absence for convalescence for a month or two After this if the heart is still enlarged, whether the beat is regular or not the man cannot be considered cured, and should be sent to a sanatorium to recuperate further The same principle should be applied to convalescents from acute articular rheumatism, typhoid or paratyphoid, scarlet fever, etc

45 **Glossopharyngeal Paralysis**—Vernet states that paralysis of the superior constrictor of the pharynx is generally responsible for difficulty in swallowing solid food This muscle is innervated by the glossopharyngeal nerve Paralysis of the pneumogastric or spinal nerve does not entail this difficulty in swallowing solids Another feature of paralysis of the superior constrictor is a curtain movement of the posterior wall of the pharynx from the affected side toward the sound side There is also disturbance in the sense of taste of the posterior portion of the tongue when the glossopharyngeal nerve is profoundly altered or has been severed The diagnosis of glossopharyngeal paralysis may aid in determining the site and extent of other associated paralysis His chart showing his conception of the innervation of the pharynx differs in several respects from those of the textbooks

Presse Médicale, Paris

December 18 1916 XXIV No 70 pp 577 592

47 Work in Munitions Factories as Affecting Pregnancy and Childbirth E Bonnaire Title page
48 *Pellagra L Sambon—p 577
49 Spontaneous and Immediate Obliteration of Large Arteries of the Limbs in War Wounds P Bertein—p 581
50 Fracture of Lower Jaw (Les fractures de l'angle et de la branche montante du maxillaire inferieur) A Herpin—p 583
51 Continuous Extension for Stump after Amputation (Extension continue sur les moignons d'amputation) A Binet—p 584
52 Principles for Apparatus for Reeducating the Maimed (Conception nouvelle des appareils de reeducation) Privat and Belot—p 584
53 Present Status of Etiology and Prophylaxis of Epidemic Poliomyelitis M Romme—p 585

December 21 No 71 pp 593 600

54 *Recurring Tuberculous Pleurisy (La pleurite tuberculeuse a repetition Piery—p 593
55 Electric Test for the Hearing (Examen des surdites de guerre Procedes nouveaux d'acoumetrie) R Foy—p 595
56 *Throbbing in Felons etc (De la sensation du 'doigt qui bat dans le panaris) R Lutembacher—p 597

48 **Pellagra**—Sambon has maintained for eleven years that pellagra is probably an infectious disease, possibly the work of some protozoon which is transmitted by the sting of some winged insect Recently he has studied pellagra in the various foci of pellagra in Europe, the United States and the Antilles, and he has established its presence in the British Isles in British Guiana and in several parts of France He has noted the prevalence of pellagra in quite young children in the endemic foci, also the great importance of the disease as a cause of insanity He says that the history of pellagra as he traces it through the centuries and in different countries shows that it occurs in certain regions, like sleeping sickness, and that those endemic foci remain permanent Outside of the endemic foci the disease can neither be contracted nor transmitted No instance is known, he affirms, of transmission of the disease in the hospitals or asylums to the medical or nursing force or other inmates, or from a pellagrin to her nursing infant In the endemic foci the disease is inevitably contracted, and usually within the first year The period of incubation may be less than two weeks The youngest pellagrin he has encountered was a 3 months babe The recurrences of the disease are like those of malaria, the flare-up may occur in March while the new cases develop later, in April, May or June In conclusion Sambon remarks that pellagra was known in Europe long before the introduction

of corn from America, and the geographic distribution of the cultivation or consumption of corn does not coincide with the distribution of pellagra, while prophylaxis based on the corn theory has proved futile

54 **Recurring Tuberculous Pleurisy**—Piery calls attention to this benign and common form of tuberculosis He discusses the factors, the symptomatology and the pathogenic import of this affection which subsides in two or three weeks under proper treatment, but is liable to return again and again when the same etiologic factors are encountered anew In about 25 per cent of the cases there is a little patch of cortical pneumonia below the pleurisy The part of the pleura involved is usually at one or both of the fissures of the lungs, and these fissures should be ausculted when we have a patient with symptoms suggesting bronchitis

56 **The Throbbing in a Felon, etc**—Lutembacher ascribes the throbbing in a felon and in certain abscesses headaches, etc, to the concentric pressure from the edema which raises the arteriole pressure to the level of the diastolic pressure, so that the arterial walls vibrate with each systole

Progrès Médical, Paris

December 20 1916 XXXI No 24 pp 233 244

57 *The Scientific Literary Output of the War (Des enseignements de la guerre germanique sur le front français) E Delorme —p 233
58 *Treatment of Ulcerative Sore Throat and Stomatitis (A propos du traitement de l'angine de Vincent et des stomatites ulcero membraneuses) F Ramond —p 241
59 Treatment of Acute Gonorrhea (Quelques details pratiques sur le traitement de la blenorrhagie aigue aux armees) Carle —p 242
60 Deforestation and Depopulation in Certain Districts in France (*La depopulation de nos campagnes*) A Satre —p 243

57 **The Scientific Literary Output of the War**—Delorme *is medical inspector general of the French army, and he* remarks that not only the unprecedented number of the wounded but the fact that three fourths of all the physicians and surgeons of France have been engaged in war surgery and the stability of the fighting line, have rendered possible the patient study of data and control of methods Repair of wounded nerves soon became the impassioned study of surgeons and neurologists, as the frequency of paralysis attracted attention He adds, "The number of stiff and ankylosed joints soon roused surgery to feel the responsibility for its previous inexcusable disdain for long treatments Surgery even now will not admit the share in these deformities that belongs to apparatus which undoubtedly simplified surgical treatment at first but too often compromised the ultimate outcome However this may be, the results we see, and often they are regrettable Mechanotherapy has shown itself to be merely palliative" Delorme then reviews the works that have been published in book form, and in the medical and surgical journals mentioning in detail the more important communications on war surgery

58 **Treatment of Ulcerative Stomatitis and Vincent's Angina**—Ramond cleans out each ulceration mechanically, then applies silver nitrate The patient gargles first with a 1 per cent solution of cocain In five minutes the ulceration can be cleaned out If there is slight hemorrhage this can be arrested by gargling with a solution of hydrogen dioxid The cavity of the ulcer is then dried with cotton and then touched with a tampon moistened with a 1 50 solution of silver nitrate The procedure is not painful but it has to be repeated daily for two or three days The technic is the same for ulcerative stomatitis except that he sometimes uses a hard brush instead of the blunt curet to clean out the ulceration

Revue de Chirurgie, Paris

1916 XXXV No 6 pp 781 914

61 *Classification and Treatment of Crippling Callus Production in the Ankle (Cals vicieux du cou de pied) J Tanton —p 781
62 Extraction of Projectiles in the Pelvic Region G Leo —p 810 To be continued
63 *Primary Tumors of the Aponeuroses G Bolognesi —p 876
64 Ligation of Carotid Artery or Its Branches for War Wounds of Vessels Eleven Cases (Plaies vasculaires des regions cervicales et cervico-faciales)—J Gatellier —p 899

61 **Deforming Callus of the Ankle**—Tanton remarks that any vicious consolidation of the ankle upsets the balance of the foot on the leg either sideways or forward and back, and there are numerous varieties of each form of disturbance Radiography is indispensable and he explains how to interpret the findings Valgus flatfoot includes deviation of the axis of the foot as well as the sinking of the plantar arch, and it is important to detect even minimal disturbance of the kind as a guide to treatment It is revealed by the imprint of the two feet side by side The sagittal planes of the two feet then form an angle of 14 degrees, the two lines meeting at a point just as many inches back of the heels as the feet are long A perpendicular line between the diverging lines shows the slightest deviation from normal Another test is by outlining the foot with a pencil and then working the pencil under the sole to outline the region where the sole is not in actual contact with the paper on which it is standing

63 **Primary Tumors of the Aponeuroses**—Bolognesi analyzes the cases on record of a primary tumor developing in the membrane of the aponeurosis and reports the details of three cases of the kind One was an ossifying fibroma of the thigh in a farmer of 22 The second was a giant cell sarcoma of the fascia lata of the left thigh in a woman of 77 The third was a hard fibroma of the left iliac aponeurosis in a young woman The tumors had been first noticed from two to four months before their removal, the first patient had been kicked in the region by a horse and the tumor had been noticed soon afterward

Berliner klinische Wochenschrift

November 20 1916 LIII, No 47 pp 1261 1284

65 *Principles for Management of Kidney Disease (Richtlinien in der Klinik der Nierenkrankheiten) F Umber —p 1261
66 Difference in Agglutinating Property of Dysentery Bacilli Strains (Unterschiede in der Agglutinabilitat verschiedener Ruhrstamme und deren Bedeutung fur die serologische Diagnose der Ruhr) L Dunner and I Lauber —p 1266
67 Case of Hereditary Progressive Dystrophy of Muscles (Fall von hereditarer progressiver Muskeldystrophie mit Beteiligung der Gesichts Lippen und Zungenmuskulatur) C W Rose —p 1267
68 *Proportion of Surviving Children Grows Less with the Number of Children in a Family (Beitrag zu der Frage ob Kinderzahl und Kindersterblichkeit zusammenhangen) C Hamburger —p 1269
69 Physical Therapeutic Measures for the War Sick and Wounded (Ueber den jetzigen Stand der Anwendung physikalischer Heil methoden fur Kriegsbeschadigte) A Laqueur —p 1271
70 The Problem of the Children from Rape (Das Kriegskinder problem) K Bauchwitz —p 1281 (Erwiderung) H Lieske —p 1282
71 Special Diet Food Cards Seldom a Reliable Basis for Morbidity Statistics (Nahrungsmittelatteste und Statistik) H Kohn —p 1283

65 **Principles for Management of Kidney Disease**—Umber classifies pathologic kidneys in three groups, 1, those with degenerative processes in the epithelial segments of the kidney—the nephroses, 2, those with inflammatory processes in the glomeruli, and 3, those with primary arteriosclerotic changes in the smaller kidney vessels The prognosis in the first type is good, in only three of his forty-eight cases of nephrosis did the condition progress to shriveling (amyloid contracted kidney in two of the three) There was neuroretinitis in five of his 170 cases of acute glomerular nephritis, although in two of the five the kidney affection had subsided Acute glomerular nephritis usually subsides under proper treatment, otherwise it passes into a chronic phase This acute type is the one observed in soldiers on active duty, cold and wet predispose to it but the actual cause is toxic action, streptococci and certain bacteria having apparently a special affinity for the glomeruli

He insists that the degree of albuminuria is of no import for the prognosis The highest albumin content is found in the first, the mildest and most curable type, the nephroses—which in their acute and subacute phases correspond to the old conception of parenchymatous nephritis Albuminuria is merely a sign that the kidney is not entirely intact It has absolutely no bearing on the prognosis in comparison to the tests of the diluting and concentrating power of the kidney, the retention of nitrogen, and the blood pressure findings The same may be said of the formed elements in the urine, the sediment is most striking in the first type, the nephroses, but it is of little import for the prognosis unless blood corpuscles in the kidney urine suggest involvement of the glomeruli

This classification allows rational treatment as, in sparing the kidney, all we need to spare is the special function which has become impaired In the first type, the nephroses, the elimination of water and salt is defective and there is a tendency to edema Consequently in this form it is better to refrain from attempts to flush out the kidneys by copious ingestion of water Salt also should be restricted The trouble is extrarenal, the vessels outside of the kidneys having become abnormally permeable under toxic influences Restriction of water is the more rational under these conditions as the sewerage power of the kidneys is not impaired otherwise Restriction to milk is wrong, as there is too much salt and fluid in the milk, if enough milk is taken to supply the needed calories, 3 liters of milk contain 5 gm of salt With chronic nephroses the elimination of water proceeds approximately normally so the intake need not be reduced

In the second type, glomerular nephritis, when acute he orders 1 5 liters of fluid a day In the second stage of the chronic form, manifested by albuminuria and gradually rising blood pressure dietetic measures have no influence although excesses in eating and drinking should be avoided In the third stage, fluids should be given up to 3 liters a day to postpone uremia unless there are cardiovascular contraindications The same applies also to the malignant form of the third type, sclerosis of the finer kidney vessels The benign type does best with restriction of fluids as this spares the heart and peripheral vessels, he warns against more than 1 or 1 5 liters of fluid a day in this type The first type, the nephroses, do not require restriction of albumin in the diet, but this is imperative in glomerular nephritis at all stages and in the malignant form of the third type It is astonishing how the azotemia and with it the subjective disturbances subside when the intake of nitrogen is restricted The albumin content of a liter of milk—5 5 gm nitrogen—is more than azotemic nephritics can stand From 3 to 5 gm a day is the limit for them The salt should be limited to 5 gm a day this amount can be taken in acute glomerular nephritis as well as in azotemic and sclerotic nephritis, but it is far too large in the first type, the nephroses, and also when glomerular nephritis is associated with a nephrosis, unless there is no tendency to edema

Venesection is useful in azotemic kidney disease, especially when combined with intravenous hypotonic saline or a 4 1 per cent grape sugar solution With uremic convulsions from swelling of the brain, when there is retention of water and salt as in glomerulitis plus nephrosis, lumbar puncture is the sovereign remedy

In the first type, the nephroses, the retention of salt and water is due to extrarenal causes to abnormal permeability of the vessels elsewhere We know of no drugs that will modify this toxic permeability, but it corrects itself, often suddenly and unexpectedly so that the fluids pass on into the kidneys and diuresis is increased, regardless of what drugs may or may not have been given This, he exclaims is unfortunately often attributed to the medicines that have been given Hence the vogue of diuretics Umber thinks that their efficacy in kidney disease without cardiovascular disturbance is but slight They may increase the output of water a little in azotemic kidney disease but the elimination of waste products is not increased by them The drugs given are also liable to be retained themselves and have dangerous cumulative effects This is particularly menacing with digitalis and strophanthin in the malignant form of the arteriosclerotic kidney

He defines the clinical picture of the first type, the nephroses, as normal or nearly normal blood pressure no retention of nitrogenous waste and no secondary cardiovascular disturbances but extrarenal retention of salt and water the concentrating and diluting power of the kidney unimpaired The third type, the arteriosclerotic in which the finer kidney vessels are the seat of primary sclerotic changes, may be merely one part of a general tendency to arteriosclerosis In the benign form the kidney disturbances are overshadowed by those from the arteriosclerosis in the heart or brain, but still they are responsible for the high blood pressure with slight or no albuminuria and for the tube casts When the kidney disturbances predominate, we have the malignant form the chronic interstitial nephritis of the old school true contracted kidney in its narrower sense Analysis of his 150 cases of sclerotic kidney has demonstrated that the outcome of the cases—whether they are to be benign or malignant—depends on whether the glomeruli get a chance to functionate properly or not When they can work properly, the kidney trouble is of minor importance, and the patient dies at last from the heart or brain arteriosclerosis

68 **Death Rate in Relation to Birth Rate in Families**—Hamburger tabulates statistics from 1,042 families in 1908 and 1 047 in 1913 showing the number of conceptions and of children surviving to the sixteenth year The figures show a constant decline from over 76 per cent surviving to the sixteenth year in families with one child and over 66 and 72 per cent in families with two children to only 30 66 and 30 37 surviving in the families with most numerous conceptions The number of children that died also showed a constant increase from the one and two children families to the more numerous families

Deutsche medizinische Wochenschrift, Berlin

November 30 1916 XLII No 48 pp 1469 1500

72 Suture and Plastic Operations on the Eyeball Immediately after Injury (Die Erfolge der Augapfelnaht und deckung zur Erhaltung des Auges bei frischen Augapfelverletzungen) F F Krusius —p 1469
73 Visual Disturbances after Skull Injuries (Sehstorungen bei Schadelverletzungen) T von Mutschenbacher —p 1471
74 *Ostitis of Paratyphoid Origin in Soldiers (Zur Frage der Ostitis bei Kriegsteilnehmern) R Stephan —p 1473
75 The Question of Simulation in Soldiers G Voss —p 1476
76 Five Day Fever ' (Zur Frage des Funftagefiebers) Schwinge —p 1477
77 Elimination of Uric Acid in Disease of Glands with an Internal Secretion (Ueber Harnsaureausscheidung bei einigen Fallen von Blutdrusenerkrankungen) J Nowaczynski —p 1478 Concluded in No 49 p 1510
78 *False Rust s Disease (Malum Rustii) Hnatek —p 1480 Commenced in No 47 p 1445
79 Stereoscopic Localization of Projectiles (Ueber den Stereoplanigraphen und seine Verwendung zur Lagebestimmung von Geschossen) Druner —p 1482
80 Field Bedstead (Eine Feldbettstelle) K Laubenburg —p 1486

74 **Paratyphoid Ostitis**—Boring pains in the legs, suggesting ostitis, accompanied by leukopenia and relative lymphocytosis seem to be a tardy phase of paratyphoid B infection testifying to renewed toxic injury of the blood-producing system Stephan relates that only 10 per cent of the numerous cases of paratyphoid B that he has encountered presented the classic clinical picture of abdominal paratyphoid or paratyphoid gastro-enteritis In 80 per cent the disease ran a protracted course indicating a chronic infection of the blood-producing system the lymph glands spleen and bone marrow In this chronic course a wave of renewed toxic action on the bone marrow may cause pains suggesting a new and different infectious process in the bone involved This may occur without any rise in temperature but the number of leukocytes drops and the proportion of lymphocytes increases Stephan suggests that one reason for the different course of infectious diseases in military and civilian circles is that direct contact is mainly responsible for the infection in army circles, while elsewhere contamination of food etc, must be incriminated

78 **Gumma and Gout Involving Upper Vertebrae**—The first instalment of Hnatek s communication was summarized on page 230 He here describes a case of supposed Rust's disease in a man of 35 who had had for four months pains and stiffness in the suboccipital vertebrae It proved to be the work of a syphilitic gumma and, after this had retrogressed under specific treatment, a defect was left in the arch of the atlas In another case described a woman of 48 had been subject to intense migraine from childhood At the menopause it had become transformed to neuralgia in the occiput radiating to the temples Typical attacks of gout had occurred at times during the last ten years, mostly in the hands and arms, one joint becoming affected as another returne

approximately normal, each attack dragging along for weeks Finally the occiput region became very painful, any pressure on the atlas region caused intense pain, as also any movement of the head This state of things continued for eight days and then gradually subsided to complete disappearance of all local symptoms in this region by the end of six weeks Hnatek says that the whole trouble was thus shown to be merely a gouty attack, localizing at this point The woman took antineuralgics and electric treatment, the high frequency current Gout, syphilis and articular rheumatism hence must be excluded before we label a case as Rust's disease

Medizinische Klinik, Berlin

November 26 1916, XII No 48 pp 1249 1274

81 *Stomach and Bowel Trouble from Standpoint of Fitness for Military Service (Ueber die militarische Dienstverwendungsfahigkeit der Magen und Darmleidenden) L Schuller —p 1249

82 *Venesection plus Autoserotherapy (Eigenserum und Aderlass—Lehre und Anwendung) B Spiethoff —p 1252 Commenced in No 47, p 1223

83 Cerebellar Ataxia after Diphtheria Serog —p 1255

84 *Austin s Water Test Meal for Examining the Secretory Function of the Stomach (Untersuchungen uber die Wassermahlzeit nach Austin zur Bestimmung der sekretorischen Leistungsfahigkeit des Magens) B Brendle —p 1257

85 Improved Technic for Conservative Amputation of Knee and Foot Stern —p 1258

86 *Treatment of Stump Ulceration (Zur Behandlung der Stumpfgeschwure)* E Fuchs —p 1259

87 Improved Technic for Artificial Leg (Die Macholdprothese) R Pressburger —p 1260

88 Indications for Obstetric Operations by the General Practitioner (Zur Indikationsstellung bei den geburtshilflichen Operationen des praktischen Arztes) H Walther —p 1261 Concluded

81 **Gastro-Intestinal Disease and Fitness for Military Service**—Schuller has been impressed by the rarity of nervous dyspepsia among the troops on active service Even those previously subject to it seem to feel well and stand the conditions on the firing line as well as others Excessive gastric secretion does not impair military efficiency if an ulcer can be positively excluded He has found anacidity much more common than in peace, as also gastric ulcer active or healed A number of men with gastro-enterostomy have gone through the campaign as efficiently as others He has examined about a hundred

82 **Venesection Plus Autoserotherapy**—The first part of Spiethoff's article was reviewed in these columns, January 27, p 310, abstr 44 He here presents data which confirm that robust persons show no permanent consequences contraindicating rapidly repeated venesection One robust young woman with eczema but otherwise healthy, had a red blood count that ranged from 4,136,000 to 4,872 000 with 80 per cent hemoglobin in the course of the third day, after withdrawal of 100 c c blood seven times within thirteen days The white count was 12 000 at first and 9,200 at the last For less robust persons, not over 30 or 50 c c of blood should be removed On the whole the effect seems to be a modification of the general organism or of certain parts of it This is most evident when drugs and other measures, which had lost all power to induce a reaction on the part of the tissues, reacquired therapeutic efficiency after reinjection of the patient's own serum or injection of sodium nucleinate The benefit from venesection and the reinjection of serum is best explained by stimulation of the production of antibodies and their mobilization

84 **The Water Test Meal**—Brendle remarks that the difficulty in obtaining white bread and tea for the Ewald test meal has led to the adoption at the Freiburg policlinic of Austin's water test meal in testing stomach functional capacity In 150 cases the parallel findings with the Austin and Ewald test breakfasts were compared in five sets of tests The findings confirmed that a single water test breakfast according to Austin is sufficient for determination of the chemistry of the stomach Nervous inhibition, with achylic findings, is more liable to be induced with the Austin than the Ewald-Boas technic But this can be warded off more or less completely by addition of raspberry juice to render the test breakfast more palatable, and giving the patient something to chew on and swallow, such as a malt bonbon It is a great advantage of the Austin method that bile, blood, relics of food, etc, in the stomach content show up much better, and further tests, like Salomon's test for albumin, can be more easily applied Brendle uses 100 c c of water plus two tablespoonfuls of raspberry juice The malt bonbon is calculated at 10 gm

Munchener medizinische Wochenschrift, Munich

November 14 1916 LXIII No 46 pp 1613 1648

89 Silver Preparation Salve in Treatment of Vaginal Gonorrhea (Behandlung der Frauengonorrhoe mit Protargolsalbe) E Kuznitzky —p 1613

90 **The Sugar in the Blood and Dietetic Treatment in Addison s Disease* (Blutzucker und Diattherapie bei Morbus Addisonii) L R Grote —p 1614

91 Paratyphoid A Two More Cases (Zur Klinik des Paratyphus A) F Loewenthal —p 1616

92 *Symptomatology of Patent Ductus Arteriosus or Botalli J Forschbach and M Koloczek —p 1617

93 Antitoxin Not Required in Nasal Diphtheria as a Rule H Schwerin —p 1619

94 Ring through Stump to Aid Control of Artificial Leg (Einige Bemerkungen uber Stumpfbehandlung und uber ein neues durch die Oberschenkelstumpfmuskulatur bewegliches kunstliches Bein) Blencke —p 1633

95 * Five Day Fever ' (Zur Kenntnis des Fünftagefiebers '—Febris Wolhynica) F Sachs —p 1635

96 Operative Treatment of Contracture of Knee and Elbow G Hohmann —p 1639

97 Harpoon Method for Locating Projectiles with Roentgen Rays (Die Weskische Geschossharpunierung Leitsatze zu einer schulgemassen Operationstechnik der Geschossentfernung auf Grund praktischer Erfahrungen) A Schafer —p 1640

98 Two Scraps of Shell Entering through One Wound and Diverging (Schadelgranatsplittersteckschuss 2 Splitter bei einem Einschussloch) O Kiliani —p 1642

99 Superior Advantages of Adjustable Pulley Extension for the Arm while in Bed (Armbewegungs Rollenzugapparat im Bett) Frensdorf —p 1644

100 Treatment of Hysteric Loss of Voice, etc (Zur Behandlung hysterischer Stimmstorungen) H Curschmann —p 1644

101 Management of Functional Neuroses (Vorschlage zur Versorgung der funktionellen Neurosen) Schlayer —p 1645

102 *The Wassermann Reaction in Typhus (Auftreten Was erman cher Reaktion bei Fleckfieber) Bittorf —p 1646

103 *Suture of Carotid Artery (Resektion und Naht der A carotis communis)* v Parczewski —p 1646

104 Advantages of Grinding Instead of Chopping Bones for Soup Stock (Vergleichende Untersuchungen von Bruhe, die aus zerschlagenen und gemahlenen Knochen hergestellt ist.) O Gottheil —p 1647

90 **Improvement Under Dietetic Measures in Addison's Disease**—Grote reports a case of severe primary Addison's disease the young man lying apathetic in bed No benefit was apparent under suprarenal treatment until efforts were made to increase the sugar content of the blood by feeding extra sugar Rapid improvement followed, the appetite increased he gained in weight, and by the end of eight weeks could walk for an hour without special fatigue, and the pigmentation retrogressed Grote cites evidence to show that the sugar content of the blood has been found abnormally low in two thirds of the cases of pronounced Addison's disease examined to date At the same time the tolerance for sugar is exceptionally good In his case there was no elimination of sugar in the urine after 100 gm of levulose or 200 gm grape sugar At the beginning of treatment the sugar content of the blood was 0 05 per cent , in two weeks after 100 gm sugar had been added to the daily ration—which already included 300 gm carbohydrates—the sugar content of the blood rose to 0 056 per cent , in eight weeks it was 0 1 per cent and the ninth week 0 9 per cent, the rise constantly and closely paralleling the clinical improvement The blood was examined mornings before breakfast Arnoldi recently announced that carbonated baths seemed to stimulate suprarenal functioning, as he found the sugar content of the blood higher after such baths—an "asphyxia hyperglycemia ' Grote consequently gave his patient carbonated baths in addition to the dietetic measures and the organotherapy The literature bearing on the various questions involved in treatment of Addison's disease is discussed in detail

92 **Symptoms of Patent Ductus Arteriosus**—The two patients were girls of 10 and 17, both with curvature of the spine, and the older girl had never menstruated In both during prolonged inspiration and the Valsalva test the systolic murmur dwindled or disappeared entirely, while the Roentgen shadow showed a flattening of the second arc of the heart s left outline—all demonstrating a reduction in the

pressure in the aorta under the influence of the increased alveolar pressure

95 **"Five-Day Fever"**—Sachs reports nine cases and declares that this name for the disease is absurd, as there is no such regularity in the recrudescences of the fever The term "Wolhynic fever" is also irrational as the disease is not restricted to Wolhynia He suggests as the most descriptive term tibialgic or neuralgic fever

102 **Wassermann Reaction Positive in Typhus**—Bittorf some time ago called attention to the appearance of positive Wassermann findings in nonsyphilitics after injury or destruction of organs particularly rich in lipoids, as with cancer of the liver and tumors in the brain or spinal cord As these organs are especially involved in typhus, the blood in this disease likewise responded positively to the Wassermann test in the two cases he has examined for the purpose There was nothing to suggest syphilis in either case, and the response was repeatedly negative when tested from six to nearly eight weeks later

Wiener klinische Wochenschrift, Vienna

December 7 1916 XXIX No 49 pp 1547 1578

105 Study of Limping (Ueber das Hinken) A Saxl—p 1547 To be continued
106 *Diagnostic Agglutination of Proteus Bacilli in Typhus the Weil Felix Reaction (Vorkommen der Weil Felixschen Reaktion bei Fleckfieber vom Balkankriegsschauplatz) J Cancik—p 1552
107 *Special Type of Roentgen Shadow with Chronic Gastritis (Ueber die Erkennbarkeit einer bestimmten Form von chronischer Gastritis im Rontgenbilde und deren Bedeutung fur die Ulcusdiagnose) G Schwarz—p 1554
108 *Galvanopalpation of the Abdomen M Kahane—p 1557
109 *Changes in Leukocyte Picture after Vaccination against Typhoid (Bemerkungen zu den zytologischen Veranderungen nach Typhus impfung) L T E v Draga—p 1559
110 Magnesium and Aluminum Alloy for Sets of False Teeth (Zahn ersatzstucke aus Magnalium) F Schenk—p 1559
111 *Syphilitic Aorta Disease L v Korczynski—p 1561 Concluded
112 J F W Krimer 1795 1834 (Zur medizinischen Kulturgeschichte III) I Fischer—p 1564
113 Vasomotor Paralysis and Allied Groups of Symptoms in Soldiers on Active Service (Nervose Kriegsdienstschadigungen I) O Gross—p 1577

106 **Reliability of Weil-Felix Reaction**—Cancik writes from Prague that the Weil-Felix test gave positive findings in 90 per cent of his cases of typhus in a recent epidemic In many cases the titer rose from low to high during the course of the disease, while the findings were negative in other patients and in the healthy, or only faintly positive at 1 25 They were constantly negative in forty typhoid cases On the other hand, the Widal reaction sometimes grew more pronounced in typhus patients who had had typhoid at some time or been vaccinated against it (The Weil-Felix reaction was described in The Journal, Jan 6, 1917, p 55)

107 **Roentgen Picture of Certain Form of Chronic Gastritis** —Schwarz calls attention to the indented outline of the entire greater curvature of the stomach in a man of 35 who for years had suffered occasionally from severe gastric disturbances for which no cause could be detected The prominences and inlets shown in the Roentgen picture were most pronounced in the lower part of the greater curvature outline, some of the indentations here being from 1 5 to 2 5 cm deep, but they could be traced almost up to the cardia The peristaltic waves did not modify this outline The laparotomy showed the stomach apparently normal, with no external signs of an ulcer or tumor, but two minute healed ulcers were found in the duodenum, and gastro-enterostomy was done The mucosa of the inner wall of the stomach was found swollen and hyperemic thrown up into numerous thick folds which projected into the lumen of the stomach thus explaining the indented line of the shadow During the three years since this operation, Schwarz has encountered a number of similar cases, although none so extreme as the first Dietlen described an analogous case in 1912, but he interpreted it as inoperable malignant disease, and was surprised to find the patient much improved by the end of a year without special treatment He then assumed that perigastritic changes must have been responsible for the indented outline. Handek described the indentations to traction from an assumed ulcer on the lesser curvature Lengthwise folds in the stomach mucosa may be regarded as physiologic Horizontal folds are evidence of a chronic gastritic process, probably induced by irritation from primary hyperacidity and hypersecretion The conditions thus favor production of an ulcer, which may or may not be present with this "corrugating gastritis"

108 **Electric Palpation of the Abdomen**—Kahane expatiates on the instructive findings with what he calls galvanopalpation of the abdomen With a rheostat and galvanometer he seeks to determine the sensitiveness to a very weak galvanic current He says that an electrode tapering to a point, connected with a 1 milliampere current, can be passed over normal tissues without their feeling it, but it irritates diseased tissues They smart or burn under this galvanopalpation while the vessels dilate, the skin growing red in the area tested He applies the point of the electrode by repeated tapping over a small area The reaction weakens if the test is applied too long in one area The area of the smarting or burning response to the electric current does not always coincide with the location of spontaneous pains or tenderness but the vascular reaction accompanying it confirms the reliability of the information thus derived For instance, if there is pain in the right iliac fossa but negative galvanopalpation findings while there is a pronounced response to the galvanopalpation in the gallbladder region, the probabilities are in favor of the latter s being the source of the trouble Another advantage of the galvanopalpation is that the light touch of the electrode does not injure even acutely inflamed tissues below, when the palpating finger elicits severe pain Among the points learned in the course of Kahane's experience with this electric examination of the abdomen, he mentions the constant positive findings in the right iliac fossa with spastic constipation, and in the left iliac fossa with atonic constipation In a case of pathologic exaggeration of the gastroduodenal reflex with diarrhea directly after eating galvanopalpation revealed a hypersensitive area at the junction of the pylorus and duodenum All other methods of examination gave a negative response Nothing else will locate with such precision the pathologic area as this galvanopalpation, he reiterates, urging others to apply it just before operations and compare the findings with both In the gastric crises of tabes, the stomach region gives negative findings, while positive findings are the rule in the region of the lower dorsal nerve roots With one patient with attacks resembling tabetic gastric crises but for which hysteria and enteroptosis proved to be responsible no positive galvanopalpation findings could be elicited anywhere Of course the reaction indicates merely irritation of the nerve terminals in the skin, but experience has demonstrated that this irritability of the nerve terminals corresponds to a pathologic process below

109 **Eosinophilia After Antityphoid Vaccination**—Draga rejects Labor's conclusions as to the eosinophilia he found in men who had been vaccinated against typhoid Draga has found this eosinophil leukocytosis extremely frequent among his hospital patients, both military and civilian, representing different Balkan nations, and a few had been vaccinated against typhoid He scarcely ever found helminths in the stools, but the necropsies revealed an astonishing prevalence of helminths in the body He declares that nothing short of necropsy justifies an assertion of freedom from helminths

111 **Syphilitic Aortitis**—The preceding instalments of Korczynski s article were reviewed in these columns, page 233 He notes that the location of the mesaortitis seems to be of more moment than its extent Even when the coronary vessels are suffering, this may be due directly to the syphilitic virus, without actual irreparable organic changes Hence energetic treatment of the syphilis may induce wonderful improvement even when the patient seems doomed He insists on repeating the course of treatment if the Wassermann reaction is still positive at its close

Gazzetta degli Ospedali e delle Cliniche, Milan

December 3 1916 XXXVII No 97 pp 1521 1536

114 Toxic Action of Asphyxiating Gases (Contributo alla conoscenza dell'azione tossica dei gas velenose usati dagli Austro Tedeschi) G Pisano—p 1521

December 14 No 100 pp 1569 1584

115 *Obliteration of Varicose Veins by Injection of Iodin Solution (Contributo alla cura chirurgica delle varici degli arti inferiori secondo il metodo Schiassi) A Franchini —p 1570
116 Auto Inoculation of Ulcus Molle (Auto inoculazione di ulceri molli alla regione pubica per grattamento in un ammalato, affetto da phthiriasis pubis) C Vignolo Lutati —p 1574

115 **Treatment of Varicose Veins**—Franchini expatiates on the advantages of Schiassi's method of treating varicose veins by injecting into them 25 or 30 gm , to a maximum of 50 or 60 gm , of a solution of 1 gm metallic iodin and 1 1 gm potassium iodid in 100 c c distilled water The injection is made slowly into the peripheral stump of the saphenous vein about four fingerbreadths below where it joins the femoral vein The patient stays in bed, with the limb raised a little for two or three days By the end of the week the saphenous vein is transformed into a hard cord In two weeks he can get up, and can resume his ordinary occupation by the end of a month The results were extremely gratifying in Franchini's eighteen cases

Brazil-Medico, Rio de Janeiro

November 25 1916 XXX No 48 pp 377 384

117 Flagellate Parasites of Mammals in Argentina (Sobre os flagella dos parasitos dos mamiferos da Republica Argentina) O O R da Fonseca —p 377
118 *Cure of Ulcerating Granuloma under Intravenous Injections of Tartrate of Antimony and Potassium (Emeticotherapia endo venosa no granuloma ulceroso) A A da Matta —p 378

December 2 No 49 pp 385 392

119 *Study of the Biology of Species of the Schistosomum Mansoni A Lutz —p 385
120 Nematods of the Cucullanus Genus (Nota sobre cucullanidae nov fam) A L de B Barreto —p 388

December 9 No 50 pp 393 400

121 Mechanism of Humming Sound in the Arteries (Do ruido de piao—tambem chamado de piorra, corropio, rodopio e berra boi) P Valladares —p 393
122 Antitoxin in Diphtheria (Factos contradictorios sobre a sorothera pia antidiphterica) O Clark —p 394 To be continued

118 **Treatment of Ulcerating Granuloma**—In Da Matta's patient the granuloma had persisted for eight months It was in the genital region and measured 3 by 5 cm , a smaller ulcer had developed opposite on the thigh It had only been aggravated by local measures, but marked improvement was noted after the third intravenous injection of tartrate of antimony and potassium, according to the usual technic, and both ulcers soon healed over Eighteen injections were given in all in the course of thirty-four days

119 **Evolution of the Schistosomum Mansoni**—Lutz reports considerable research on this schistosomum, the results confirming Leiper s statements He found that the larvae could hatch out from the ova many days after they had been expelled in the feces Contact with water is required for the ova to hatch and the larvae prefer to stay on the surface of the water These three facts facilitate contagion He experimented with five species of fresh water snails, striving to infect them with the schistosomum but was able to succeed only with one species the *Planorbis olivaceus Spir*, which is encountered mostly in northern Brazil Infection occurs by way of the antennae, the changes in which show when infection is installed Other flat and long snails attract the larvae and they invade the antennae but the evolution of the schistosomum does not proceed to completion in either of them The *Schistosomum mansoni* requires heat for its development its growth and proliferation being impeded or checked entirely by low temperatures

Semana Medica, Buenos Aires

October 13 1916 XXIII No 41 pp 359 418

123 *Echinococcus Disease (Equinococosis) J Llambias —p 359
124 Influenza and Vaccine Treatment (Algo acerca de una epidemia) F G Alvarez —p 367
125 *Genital *Prolapse* (*Tratamiento del prolapsus utero vaginal*) E A Fox —p 370
126 Placenta Previa Etiology and Treatment U Fernandez —p 372

123 **Echinococcus Disease**—Llambias found the parasites in the liver in 113 of the 143 cases of echinococcus disease that he has examined after death In 68 cases the liver seemed to be the only site, but in 11 cases the lung was also involved and in 34 cases other organs

125 **Uterovaginal Prolapse**—Fox's communication is based on 105 operative cases in the last five years He aims to reenforce the perineum and make the genital hiatus narrower The uterus is not removed unless for special indications as this needlessly complicates the operation Twelve of the women were left with incontinence of urine but this was corrected by anterior colporrhaphy or torsion of urethra

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

November 25 1916 II No 22, pp 1921 1984

127 Action of Radium Rays on the Heart Functioning (Radium bestraling en hartswerking) H Zwaardemaker C E Benjamins and T P Feenstra —p 1923
128 Presbyopic Asthenopia W Koster —p 1929
129 Industrial Insurance and Accident Legislation in the Netherland (Over uitkeeringen door de rijksverzekeringsbank krachtens de ongevallenwet 1901 verleend in gevallen van ernstige verminking *op jeugdigen leeftijd*) G P van Trooijen —p *1932*
130 To Remove the Tonsils or Not? (Het vraagstuk der tonsillec tomie) P J Mink —p 1937

Finska Lakaresallskapets Handlingar, Helsingfors

October 1916 LVIII No 10 pp 1471 1582

131 War Wounds of Lower Jaw and their Treatment (Bidrag till behandlingen af skottskador i underkaken tillika ett bidrag till forfardigandet af provisoriska resektionsproteser for under kaken) R Faltin —p 1471
132 Myxomatous Tumors (Iakttagelser *öfver strukturforhållanden i* bindvaf II) H Eklof —p 1505
133 *Alcohol and Precision Work (Alkohol och precisionsarbete) U Totterman —p *1527*
134 Case of Chronic Actinomycotic Suppurating Mastitis (Ett fall af kroniskt forlopande varig mastit, fororsakad af en clado trixart) F Langenskiold —p 1538
135 Differential Count of the Leukocytes in the Counting Chamber (Kan en leukosytformel baserad endast pa procenttal gifva en ratt forestalning om blodets morfologiska sammansattning?) T Sandelin —p 1552
136 Accommodation in Comparative Ophthalmology (Ogats ackommo dation inof djurrackan) V Gronholm —p 1558

133 **Alcohol and Effect on Needle-Threading Tests**—Totterman's research was conducted on himself and the findings are tabulated over a period of forty-three days, two weeks free from alcohol alternating with two weeks under the influence of 100 c c of a 25 per cent solution of alcohol taken each evening at 11 p m The test consisted in the attempt to thread as many needles as possible in a given time This work was done at 10 a m, thus eleven hours after the ingestion of the alcohol He had 200 No 6 needles stuck on a cushion where they could be easily picked up The threads were No 36 white thread, cut into 20 cm lengths and laid over a board so that they hung down over the edge a couple of rulers laid over the threads preventing tangling As the needles were threaded he dropped them on a paper, and every fifth minute a new paper was drawn over the old one For each test the ends of the threads were cut off fresh Some charts show the falling off under the influence of the alcohol for example, in one test the number of needles threaded dropped from 182 to 160 in the first period and from 185 to 158 in the second

Hygiea, Stockholm

1916 LXVIII No 23 pp 1761 1808

137 *Tumors of the Carotid Gland (Bidrag till kannedomen om karo tiskorteltumorer) P Wetterdal —p 1761

137 **Tumors of the Carotid Gland**—Wetterdal's attention was attracted to this subject by two cases encountered, one in a man of 47 the other in a woman of 56 The tumors had been noticed for several months The man's tumor had invaded the large vessels and he died after a second operation which became necessary within six months The woman's tumor was removed without trouble Wetterdal has found records of seventy-four cases in the literature but only sixty-three can stand analysis These he tabulates, with details as to the size of the tumor, nature, outcome, etc Both sexes are about equally represented in the statistics, and both sides These tumors are generally benign and cause no symptoms, but a certain proportion display a malignant tendency and invade the vessels so that the mortality is about 25 per cent It was *29* per cent in the last series *of fifty-nine operative* cases

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THE AFTER-CARE OF POLIOMYELITIS AS A PUBLIC PROBLEM

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BOSTON

No recent event in medicine has caused more anxiety than the epidemic of poliomyelitis during the summer of 1916, which became a panic in certain localities Moreover, the history of the 1907 epidemic and similar records give reason to fear extensive recurrences of the disease during the next two years

While the subject of prevention is one of great importance and public interest, what now demands serious consideration is the care of the wreckage left after the epidemic It is this problem that I desire to discuss I shall speak (1) of the extent of recent epidemics, (2) of the inadequacy of the ordinary facilities for providing the requisite care, and (3) of plans suggested for meeting the existing needs

During the past summer there were reported to the health authorities in the United States no less than 27,000 cases of poliomyelitis About one half of these occurred in the state of New York The other states in which the epidemic was most severe, in the order of the greatest relative prevalence, were New Jersey, Connecticut, Massachusetts, Minnesota, Delaware, Rhode Island and Pennsylvania In only four states — Nevada, New Mexico, Georgia and California — were no cases reported

An official analysis[1] of the New York City cases was made in October This showed that the fatality had been about 26 per cent Of 2,715 patients who recovered and were investigated at their homes, 65 per cent showed a "serious paralysis of one or both lower limbs" and were "unable to walk," and 19 per cent more "were partially paralyzed in the lower limbs, although still able to walk" These figures from New York City give a scale by which one may measure the whole group in a general way, for the figures will probably not differ materially wherever they may be taken

It need hardly be said that no such prevalence of the disease has ever been recorded, and that the statement occasionally heard that there has not been much more poliomyelitis than usual this year and that it is really a newspaper sensation is wholly misleading It is obvious that these thousands of paralyzed children constitute a humanitarian and economic problem of no mean dimensions — a problem which must be defined a little before we proceed farther

Poliomyelitis leaves behind it, in many cases, a paralysis which is of itself disabling, and which, if neglected or badly treated, often leads to serious and disabling deformities These deformities are preventable, with the exception of those affecting the spine and shoulder, by treatment In carrying out this treatment we are striving to prevent deformity and disability, which necessitates a struggle lasting over years Muscles in most instances are weakened rather than totally paralyzed, and the fate of many of them depends on whether in the first year they are protected from fatigue and stretching, and are carefully exercised, massaged and, if need be, supported, under which favorable conditions they may recover, or whether the children are allowed to go about as they will, without efforts to develop muscular strength and without careful therapeutic supervision, in which case the muscles are not likely to recover, and deformities are liable to result

If a modern industrial enterprise had to meet the problem of treating these children properly now or carrying them through life as dependents, there would be no doubt about the financial and economic aspect of the matter, and prompt care would be provided

The dangerous time in infantile paralysis from an economic point of view is not in the first two or three months after the attack That period has its dangers, but in the only three states of which I have first hand information — Vermont, New York and Massachusetts — the disease in this period is efficiently and carefully treated by the general practitioner In 1,700 cases of this year's epidemic recently seen in New York state there have been very few cases in which any preventable deformity, even a dropped foot, had occurred, and not one case in which was found evidence of neglect on the part of the attending physician

At the end of from three to six months, however, there begins a period which lasts for years, during which time many a patient acquires needless, lasting and perhaps disabling deformity As an instance of this, at one of the recent New York clinics among forty patients there were three who will illustrate this point One was a little girl, affected three years previously, whose parents were poor, but who had spent a great deal of money on irresponsible fakers She had acquired a badly overextended knee and could barely walk The condition can be remedied by a brace costing about $5 Two boys had been quadrupeds for nine and seven years, respectively They walked on all fours like monkeys One went to school and went about the class room in this way, they could go up and down stairs and about the house, but always as quadrupeds One needs a pair of braces, a corset and crutches to walk like a human being, at a cost of not over $25 The other needs a preliminary division of some shortened muscles, which will keep him in bed about six weeks, after which, with the apparatus mentioned for the other boy, he can go about

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[1] New York City Bulletin of Health Oct 23 1916

With regard to the general problem, two states — New York and Massachusetts — have answered that in their opinion the situation requires special measures To these should be added a third and pioneer state — Vermont — which decided in 1914 that an epidemic of about 300 cases was severe enough to warrant state care and supervision, which has been in effect there since January, 1915

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Again, in epidemic centers the special dispensaries will in the months following the epidemic be greatly overcrowed, a condition which will inevitably lessen their efficiency Adequate treatment demands a thorough examination, and in each case of poliomyelitis a correct muscular diagnosis can be made only by an examination of each accessible muscle or muscle group in both arms, both legs, back, abdomen and neck This takes time and care as well as experience and skill

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The practical aspect of this question — the question of how to meet the problem in a rural community — was presented to me in a concrete form in Vermont in 1915 I had been requested by the Vermont State Board of Health to undertake the after-treatment of about 300 patients paralyzed in the summer of 1914 These patients were scattered through the northern half of the state, many of them living in the country on farms and in the mountains There were no special hospitals or clinics in the state, and the only available means of dealing with the cases seemed to be to assemble the patients at clinics in five centers At these clinics each patient was thoroughly examined by me, with the aid of one muscle trainer, in consultation with the attending physician, who was generally present If apparatus was needed, it was measured for by me, made under my direction and sent to the physician If muscular exercises were needed, they were formulated at the time of the examination, and the mother was taught to give them and received written instructions describing them The family and the physician were warned of the bad effect of fatigue, and the whole situation was discussed and emphasized before the patient left the clinic The usual arrangement was that the mother or father was to give the exercises, and the physician was to supervise the treatment After these clinics no attempt was made to hurry, and the patient received quite as much time and attention as in private practice If the family physician was not present, a letter was written to him describing the case and the treatment advised, and in every case a copy of the record was sent to him If apparatus was necessary and the parents were too poor to pay for it, it was partly or wholly paid for out of a fund at the disposal of the state board of health If operation was necessary, it was arranged for at a local hospital or elsewhere No follow-up nursing care was attempted at this time, because no one sufficiently skilled in muscle training was available. There the plan rested, and no further clinics were held until July, 1915, six months after the first series, when I went to the same places and held a second series of clinics The results were surprisingly good, and to my astonishment seemed on the whole better than results from routine dispensary treatment The crude plan worked out to meet a special emergency had succeeded

At this time a woman skilled in muscle training was secured and left in Vermont for the summer, visited it at intervals during the winter, and lived there during the summer of 1916 She made rounds of the centers, visited the parents, encouraged the mothers and kept them up to their work, talked with the physicians, reported delinquents and defects in apparatus, kept patients away from the quacks and charlatans, and changed exercises when necessary Although highly efficient and working to the limit of her strength, she could not keep track of all the cases, and a resident qualified assistant is now to be employed

As a result of this work in Vermont, directed by the board of health, many children have been prevented from becoming cripples and from acquiring needless and often disabling deformities, the families have become intelligently interested in the treatment, and the physicians have without exception cooperated, and have become interested in the after-care, as a result of which, I believe, they have become better equipped to treat these cases than most general practitioners in the large cities

A third series of clinics was held in July, 1916, from which certain data were obtained, which have been published,[2] and it is the purpose of the board of health to continue as long as necessary the supervision and treatment of these patients

Such is an account of a pioneer attempt to carry out state care of poliomyelitis patients on a simple scale

In the autumn of 1916, the state department of health of New York decided to undertake the treatment of the cases in New York State outside of New York City, following the Vermont plan, and I was asked to inaugurate and supervise the work, which began, Oct 17, 1916, at White Plains

Clinics are given at centers selected according to the grouping of the cases, and four clinics each week are held Associated in the work are Dr Armitage Whitman of New York and Dr John T Hodgen of Boston Under them are several highly skilled nurses who have been taught muscle training, and two crews of two women each, experts in spring balance muscle testing, because quantitative studies are deemed a most important part of the work

To follow up the after-treatment of the cases, nurses who are skilled in muscle training are left behind, one in a district, to work under the physicians and see that the treatment prescribed is followed, that exercises are done as ordered, that such exercises are modified as need arises, that apparatus is worn, that fatigue is avoided, and that patients report at subsequent clinics

To replace these nurses who are dropped in the districts, new nurses are taken on to travel in the unit, there to be educated in muscle training and in their turn left behind in a district As soon as the first round of clinics is completed, which will have taken nearly three months, a second series of clinics will be held in the same places, and the treatment will be modified as necessary Such a scheme to be productive of the best results cannot be finished in one year, but must go on for two or three years, and possibly for a longer time

In Massachusetts, where the epidemic started later than in New York, the Harvard Poliomyelitis Commission was requested by the state department of health to assume the responsibility of the after-care of the cases of paralysis in the state, and in November, 1916, undertook this in addition to the purpose for which it had been originally appointed, namely, to aid in the diagnosis and treatment of the acute stage and to undertake the study of the etiology of the affection

Here the Vermont plan, in a somewhat modified form, is again being followed The Children's Hospital, by the generosity of an anonymous donor, has been enabled to open a special clinic for the treatment of poliomyelitis, which has been designated as the central clinic of the commission, with which certain other clinics cooperate This is intended to serve the area within 20 miles of Boston For the other parts of the state, clinics will be held at different centers, following the same plan as in Vermont and New York

New York City has appointed a committee on the after-care of poliomyelitis, and various other municipalities have inaugurated public clinics The state of Minnesota also is considering a campaign of a similar sort

The essentials for state or city care are

1 A traveling or stationary unit headed by one or more surgeons, which may be taken to the affected centers where free public clinics are held The visiting surgeon acts as consultant to the family physician and deals with the cases through him

2 Sufficient time given to each clinic to secure adequate and thorough examination, and careful formulation of treatment by the surgeon and skilled assistants

3 Follow-up care in the homes by highly skilled women, who supervise the muscular exercises, encourage the families, see that the family physician's instructions are followed, and that the patients are kept from falling into the hands of charlatans

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[2] Lovett R W and Martin E G Certain Aspects of Infantile Paralysis, with a Description of a Method of Muscle Testing, The Journal A M A, March 4 1916 p 729

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Payne,[9] Fletcher,[10] Beebe,[11] Best,[12] Williams,[13] Logan,[14] and Leary[15] The results of their investigations were diverse and do not materially assist in clearing up the confusion existing relative to the bacteriology of the disease The only deduction which they justify is that a number of microorganisms, potentially pathogenic, may under certain conditions be isolated from suppurative lesions of the gums

The possibility of spirochetes being concerned pathologically in pyorrhea has received some attention Various workers, including Noguchi, have described spirochetal types found in the oral cavity, and in 1912 Noguchi[16] isolated, in pure culture, from a case of pyorrhea a mucin producing spirochete which he named *Treponema mucosum* This organism is not regarded by Noguchi as strictly parasitic, but he ascribed to it pyogenous action under conditions in which the tissues have been so injured as to enable it to survive The strong fetid odor in some cases of pyorrhea he believes to be due in part at least to the presence of *T mucosum*

TABLE 1 —ORGANISM FINDINGS IN SEVENTY CASES OF PYORRHEA ALVEOLARIS

Organisms	No Cases *Present*
Streptococcus	19
Pneumococcus	5
B necrosis dentalis	14
M catarrhalis	23
B septus	15
Staphylococcus aureus	12
Saccharomyces	5
Micrococcus citreus granulosis	6

Recent bacterial studies which seem to be entitled to careful consideration are those reported by Medalia,[17] Brown,[18] and Hartzell[19]

Medalia's reports were based on a study of 115 cases, in which a careful bacteriologic investigation appears to have been carried out The series included fourteen incipient, sixteen moderately advanced, and eighty-five advanced cases The findings reported are as given in Table 2

We would be led to infer from these results that the pneumococcus is the most important organism to be considered, as it was found either alone or in combination in 107 of the 115 cases (93 per cent), and the streptococcus only an occasional invader, as it was reported as being present in only fourteen cases (12 per cent) The work of other investigators does not, however, substantiate this deduction Brown in forty-eight cases observed *Streptococcus viridans* twenty-three times, hemolytic streptococci thirty times, and nonhemolytic streptococci twenty-eight times Pneumococci were present in twenty-seven cases, staphylococci, diphtheroids and organisms of the *Bacterium influenzae* group being also frequently found

Hartzell's work, perhaps the most convincing of any that has been reported, points strongly to the importance of the streptococcus in pyorrhea His observations have indicated that approximately three fourths of the bacterial content of pyorrhea pus pockets is made up of pyogenic cocci of the *Streptococcus viridans*, and staphylococcus types, and the remaining one fourth of other organisms Hartzell's animal inoculations have shown that following the intravenous injection of pus from pyorrhea pockets streptococci of the viridans type are usually recovered, occasionally staphylococci

Personal observations relative to the occurrence of streptococci, staphylococci and pneumococci in pyorrhea would place streptococci first in frequency, staphylococcus next, pneumococci being observed in only a small percentage of cases

The scope of this paper does not extend to a consideration of the relationship existing between pyorrhea and systemic diseases The importance of oral infection in metastatic infections of the heart, blood vessels, joints, kidneys and other tissues is, however, generally recognized Hartzell has emphasized the fact that of the organisms found in the mouth, there are none having the varied possibilities for disease production characteristic of the streptococcus group Clinical observations as well as the results of animal inoculations have clearly shown that in the remote pathologic effects of oral infection, the streptococcus overshadows in importance all other organisms which may be present in pyorrhea pockets

A discussion of the causative factors in pyorrhea necessarily involves a consideration also of its pathology Considering interstitial gingivitis and pyorrhea alveolaris as phases of the same disease, we generally recognize that bacterial invasion is characteristic of the pus stage and is not necessarily present in cases of interstitial inflammation without pus The bacterial studies which have been reported are based largely on investigation of cases of the purulent type The occurrence of gingival inflammation, without infection, as the result of trauma, irritation and constitutional influences during the nonpurulent inflammatory stage of the disease is scarcely open to question On the other hand, the conclusion of some investigators that bacterial invasion in pyorrhea is invariably a secondary factor, infection being universally absent prior to the pustular stage of the disease, does not seem to be established An infected zone around the root of the tooth, usually due to acute streptococci infection, may exist It would be strange indeed if this were not so, since the poorly protected gingival crevice offers a splendid opportunity for bacterial attack, the microbic penetration being aided by the formation of calculi on the roots of the teeth or at the gingival margin and

TABLE 2 —BACTERIAL FINDINGS BY MEDALIA *IN 115* CASES OF PYORRHEA ALVEOLARIS

	No Cases with Organisms	Per Cent
Incipient Cases (14)		
Pneumococcus and staphylococcus	10	71
Pneumococcus	2	14
Staphylococcus and streptococcus	1	7
Sterile	1	7
Moderately Advanced Cases (16)		
Pneumococcus and staphylococcus	8	50
Pneumococcus	6	37
Staphylococcus	1	6
Sterile	1	6
Far Advanced Cases (85)		
Pneumococcus and staphylococcus	49	57
Pneumococcus	18	21
Staphylococcus	1	1+
Pneumococcus and streptococcus	3	3+
Pneumococcus streptococcus and staphylococcus	10	12
Pneumococcus and Micrococcus catarrhalis	1	1+
Staphylococcus and Micrococcus catarrhalis	2	2+
Sterile	1	1+

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[9] Eyre and Payne Proc Roy Soc Med, Odontological Section, Nov 22 1909

[10] Fletcher M H Unclean Mouth and Its Evil Results The Journal A M A July 13 1912 p 94

[11] Beebe Boston Med and Surg Jour Oct 28 1909

[12] Best Dublin Jour Med Sc **133** 91

[13] Williams Am Jour Med Sc, 1911, **112**, 606

[14] Logan Dental Rev 1911 **25**, 649

[15] Leary Dental Cosmos 1909, p 55

[16] Noguchi Jour Exper Med 1912 **16**, 194

[17] Medalia Boston Med and Surg Jour 1912 **167**, *868*, *922* Dental Cosmos January February 1913

[18] Brown New York Med Jour 1915 **98**, 1201

[19] Hartzell St Paul Med Jour, 1916 **18**, 77 Report First District Dental Society of the State of New York Jour Allied Dental Societies March 1916

4 Subsequent clinics held in the same place at intervals of three months or more over a period of at least two or three years

5 A copy of each record filed with the state department of health or central directing committee

The advantages of the plan are Special advice and treatment become available to all patients, the families are enlisted in the care of their children and share the responsibility, the family physician is assisted and not superseded, skilled assistance in after-care is provided over an indefinite time by those specially trained, the patients are kept under supervision, the clinics are educational to the profession, and the expense is not excessive

The objections to the plan are Like all schemes of state care it savors of paternalism, it is difficult to convince the community and the profession that such elaborate and long continued measures are really necessary, it has long been the custom to regard infantile paralysis as a chronic affection, on the whole hopeless, best treated by braces, with perhaps massage and exercises which any nurse or masseuse can give One of the most serious obstacles to the scheme is the difficulty of making it understood that muscle training in poliomyelitis is a delicate and serious matter requiring much skill and experience A simple explanation will show this A child is left with certain muscles in a limb normal and many weakened If exercises of an inaccurate character are given, the child inevitably uses the strong and not the affected muscles, and the strong muscles become overdeveloped and the weak ones are not used, so that the resulting condition is worse than if nothing had been done Loosely given muscular exercises are dangerous and harmful The person directing the exercises must know enough functional anatomy to prescribe such as will exercise only the weak muscles, a task far beyond the ordinary masseuse or nurse who has not had special training

The question of how far the financial burden should fall on the state and how far on private individuals is a delicate one, but as a matter of record most similar new enterprises of state-wide importance in America have first been partly or wholly cared for by private benefactions This is not the time to hesitate about a theoretical matter of this sort Any plan will require expenditure of money, and to be adequate must be formulated and put into effect promptly in the most seriously affected communities, consequently, private funds must be employed Since delay means disability, deformity and incapacity to so large a number of children, no affected community is likely to hold back long if a satisfactory plan for relief is presented

One danger deserves comment, namely, indiscriminate giving to independent enterprises not correlated to the main one A sound plan is the first essential, administered by the state or city or capable private interests, and to this plan should be tributary and related special funds

SUMMARY

I have tried to show that the number of paralyzed children among us demands an increase in our existing facilities for relief, that the problem affects both rural and urban communities, that dispensary treatment and hospital residence have defects, that state or city care offers a more satisfactory solution and has proved efficient in Vermont, that the Vermont plan is being tried in other states, and that to be successful the plan must have related and subordinated to it independent organizations for relief

234 Marlborough Street

BACTERIAL FINDINGS AND THEIR RELATIONSHIP TO PYORRHEA ALVEOLARIS AND INTERSTITIAL GINGIVITIS *

A W LESCOHIER, M D
DETROIT

Few subjects in medical history have given rise to more frequent controversies than the inflammatory diseases of the gums The classification, nomenclature, pathology, even the anatomy of the parts involved have afforded material for protracted argument Probably no phase of the subject has been more keenly discussed than the etiology, and during recent years much of this interest has centered on the part played by bacterial invaders

The probable relationship of pathogenic bacteria to the development of pyorrhea has been recognized for several decades Mallasez and Galippe[1] (1884), Black[2] (1887), Miller[3] (1889) and Kirk[4] (1898) were some of the early investigators of its bacteriology A variety of organisms were described, none of which could be specifically associated as the causative factor Probably the first to ascribe etiologic significance to any particular micro-organism was Arkovy[5] (1904), who attributed acute cases of alveolar suppuration to streptococcic infection

A detailed review of the voluminous literature on the bacteriology of pyorrhea and allied conditions appears neither necessary nor desirable Many of the reports were based on studies the scope of which was limited both by the paucity of cases under observation and the facilities and training for their intelligent investigation It seems advisable rather to try to correlate the facts established by those investigators who have definitely contributed to the bacteriology of the disease

Perhaps the most notable of the early studies on the relationship of micro-organisms to the pathology of pyorrheal diseases is that of Goadby[6] His first report in 1907 described a variety of organisms occurring in connection with pyorrhea, to none of which it was possible to attribute a definite etiologic relationship This group of organisms included, in addition to the pyogenic cocci, various types of bacilli and spirilli Curiously enough, in view of later developments and the fact that a study of his protocols shows that streptococci and staphylococci were found much more frequently, Goadby appeared to attach considerable importance to the bacillary forms In 1908 Goadby reported the successful treatment of two acute cases of pyorrhea alveolaris with autogenous vaccines, in one of these the infection was mixed streptococcus and *Staphylococcus albus*, and in the other streptococcus was present almost in pure culture In 1909-1910 a supplementary study of seventy cases was reported, in which the findings are given in Table 1

During the period from 1907 to 1912 articles dealing with the bacteriology of pyorrhea were contributed by numerous workers, among whom may be mentioned Carmalt-Jones and Humphrey,[7] Sims,[8] Eyre and white line extending to and around the apex, together with a slight widening of the space occupied by the peridental membrane itself This finding is the premonitory sign of the inflammation of peridental membrane which precedes extension of the funnel shaped pocket to and around the apex It is now only a matter of a short time till the entire depths of the root are surrounded by the liquefied products of the ulcerative pericementitis

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* Read before the Section on Stomatology at the Sixty Seventh Annual Session of the American Medical Association Detroit, June, 1916

[1] Mallasez and Galippe Compt rend Soc de biol, 1884

[2] Black Indep Pract New York, August, 1887

[3] Miller Die Mikroorganismen Mundhöhle Leipzig 1889

[4] Kirk Dental Cosmos, 1898

[5] Arkovy Brit Med Jour, 1904 2, 1371

[6] Goadby Brit Med Jour Sept 9, 1905 Tr Odontological Soc March, 1906 Lancet London, March 9 1907 Brit Med Jour Aug 22 1908 Lancet London Dec 25, 1909 Practitioner London 1912 88 107

[7] Carmalt Jones and Humphrey Lancet London Dec 28 1907

[8] Sims Dental Practitioner, Toronto, October 1908

The limitations in the value of the Roentgen findings in any disease should also be mentioned While the Roentgen findings in pyorrhea as a rule agree very well with findings elicited by a digital or instrumental examination, and are obtained with far less discomfort to the patient, there are certain respects in which they are disappointing Let me mention a few of these Sometimes a pyorrhea tooth is quite loose, and a well defined pocket is expected in the roentgenogram Instead, it may require a stretch of the imagination to find in the roentgenogram more than a simple loss of the normal white line This is undoubtedly because the atrophy which has occurred is diffuse and poorly demarcated Again the tooth shows no looseness on examination, and the roentgenogram shows the deepest kind of a pocket This apparent discrepancy is undoubtedly due to the escape from the disease of a limited portion of the investing structures, not recognizable roentgenographically, but sufficient in amount to maintain the stability of the tooth for the time being A very important point in the diagnosis may be entirely undemonstrable by Roentgen methods, and I refer to the activity of the disease at the time of examination Quite frequently roentgenograms are essentially similar in cases in which gross amounts of infective material can be expressed from the jaw to those in which the disease in all its clinical manifestations is entirely quiescent or advancing at a very slow rate It may be sufficient to mention the general roentgenographic fact that in an ulcerative process in which bone shadows show partial or poorly limited decalcification, the process is in an active or rapidly progressive stage, whereas in well demarcated cases, in which areas of complete liquefaction lie directly adjacent to areas of undisturbed bone, the process may be considered more chronic in type

CONCLUSIONS

A general survey of the denture by a series of dental films is an important adjunct to the examination of a pyorrhea case It is often a short cut to a diagnosis and is less disagreeable than an instrumental examination, but should supplement rather than displace other diagnostic methods The most important diagnostic points are observable in the region of the intimate bony investments of the roots and are obtainable only from the most critical roentgenograms

122 South Michigan Avenue

Disposing of Sputum—One of the problems in taking care of tuberculous persons is to dispose of the sputum, according to the *Sanitary Bulletin* of the Buffalo Health Department Sometimes in chronic or advanced cases this amounts to a great deal, and when no furnace fire is available, its safe disposal taxes the ingenuity of the attendants A nurse suggested a plan which is said to be effective and feasible Provide a galvanized pail or garbage can and place in the bottom of it some charcoal Place in this the sputum cups, cover with kerosene and take into the alley or yard and set on fire The charcoal will hold the fire until everything is consumed

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THE IMPORTANCE OF A CORRECT DIFFERENTIAL DIAGNOSIS OF THE PREDISPOSING CAUSES

IN CASES OF INTERSTITIAL GINGIVITIS OR PYORRHEA ALVEOLARIS *

M L RHEIN, M D, D D S
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Periodically, we are told that interstitial gingivitis, or pyorrhea alveolaris, is caused by some special organism which the writer has just discovered Specific investigation and attempts to corroborate these vaunted discoveries have always proved them to be erroneous We are just beginning to recover from the shock of how little we know about the *Endameba buccalis* The fact that a prominent research worker in medicine proclaimed to the world that the endameba was responsible for every case of pyorrhea, and that this disease was present in 95 per cent of our population, has been the direct cause of much confusion Physicians lacking education in mouth physiology and pathology were especially imposed on by this dogmatic assertion

Research work which I have conducted in the mouths of animals has corroborated the work of general observers to the effect that infection is impossible in an individual otherwise physically well Considering, as we are, end-organ tissue, it must be admitted that unless prophylactic measures have been adopted, the so-called dental organs are the first to exhibit a diminution in immunity to infection, if any form of malnutrition is in evidence If, by exercise, massage and other hygienic measures, the circulation in the ultimate capillaries is kept moving, the gums and peridental tissue will frequently retain their immunity, even though malnutrition is present

Pyorrhea alveolaris is a result of malnutrition plus infection, and also most frequently plus irritation, and it is greatly intensified if arteriosclerosis of the ultimate capillaries sets in Only daily observation of the dental tissues can make one familiar with the appearance of a normal mouth, and without this knowledge, it appears impossible for any one to differentiate the different appearances of these tissues in different diseases

While all forms of pyorrhea must commence with some form of gingivitis, yet the tissues in this and all succeeding stages vary in clinical appearance as markedly as do the generic types of malnutrition which interfere with a proper equilibrium of the circulation The blue line in the gums as a result of mercurial toxemia, and the mucous patches due to syphilis, are old landmarks in medical diagnosis In like manner the physician awaits the eruptive stage in order to make a correct diagnosis as between smallpox and measles or any of the other exanthems It may, therefore, be asserted with assurance that the variations in clinical appearance of the gums and pericemental tissues point with unerring fidelity to the cause of the dyscrasia When these are once read with the same assurance with which we now read the blue line, a great advance in the diagnosis of this disease will have been reached When it is once duly appreciated that pyorrheal symptoms are a possibility at the very onset of any inter-the number of the infecting organisms being augmented by the neglect of oral hygienic measures

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* Read before the Section on Stomatology at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

The tendency to consider any etiologic factor in pyorrhea as an entity instead of in relationship to other influences is unfortunate Irritation, trauma, metabolic disturbances and microbic invasion constitute a vicious circle in the development of alveolar diseases The bacterial element is probably the most important element in the destructive tissue changes and certainly so in the serious sequelae While it is impossible definitely to classify interstitial gingivitis or even pyorrhea as primarily a microbic disease, the pathology is intimately associated with the results of bacterial invasion and the adequate consideration of its treatment must necessarily recognize the importance of the infectious element

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THE ROENTGEN RAY IN THE DIAGNOSIS OF PYORRHEA *

HOLLIS E POTTER, M D
CHICAGO

Roentgenography for the demonstration of pyorrhea alveolaris does not differ in its technical plan from that used in other procedures intended to shed light on diseases located in the jaw bones The constant feature of the disease which makes its demonstration by roentgenoscopy possible is the ulceration of the presenting margins of the alveolar process and the more intimate bone about the roots In general the extent to which this marginal bone is found to be eroded is the measure of the extent of the disease recorded on Roentgen-ray films or plates The relative simplicity of a Roentgen-ray procedure which is required to show only the height or depth of a bone profile in so thin an object as the human jaw is quite apparent, and in reality no such rigid technic is necessary in pyorrhea as in the demonstration of periapical disease, in which a focus of minor decalcification must be detected in and surrounded by a considerable mass of bone of variable and often complex structure

This rough delineation of the general present depth of the process with respect to the dental roots in a case of known pyorrhea is therefore a relatively simple problem, and in itself is scarcely deserving of a lengthy dissertation But in any series of pyorrhea cases the general roentgenographic survey is capable of bringing to light some of the minor changes about the roots of individual teeth, such as the localized or beginning extension of the disease toward a given apex, the softening of the adjacent alveolar wall due to an early inflammation of a single peridental membrane—the signs, in short, of the early and deeper encroachments of the disease which are so important in the complete diagnosis and prognosis of a pyorrhea case For the detection of these minor but most important changes in the bony investments of the teeth only the most critical roentgenography is of value, and this must be combined with a careful and intelligent reading

In roentgenograms of the normal denture, the spongy bone of the jaw uniformly envelops the dental roots and proceeds fully up to the point of attachment of the peridental membrane In the most critical roentgenograms, the shadow of this spongy bone is seen through the shadow of the dental root, but is most prominently visible in the septal bone The septal bone is characteristically of triangular shape, with more compact bone at the marginal apex, and at this apex one often sees an apparent fusion of the white line surrounding the adjacent roots This so-called white line is the shadow cast by the denser walls of the alveolus between which and the roots themselves is the slight space occupied by the peridental membrane

It is well known dental pathology that in pyorrhea the primary site of bone liquefaction is in that bone immediately adjacent to the peridental membrane For this reason it is so often seen in roentgenograms that the marginal line of persistent bone is wavy with the deepest erosions in juxtaposition with the teeth Whenever in roentgenograms it is seen that a localized or deeper absorption has occurred, it must be admitted that no correct inference can be made as to whether this erosion lies primarily on the labial, buccal or lingual aspect of the process There is seldom seen in the most critical roentgenograms a double marginal line which could be known to represent, respectively, the inner and outer limits of erosion, and even where the double line is seen, it is impossible to distinguish the inner from the outer Moreover, the film method calls for the projection of the light at such angles that, while the teeth show with minimum distortion, there is a palpable displacement on the film of the position for attachment of the peridental membrane externally with respect to its internal attachment Should, therefore, the double line be visible in every case, a correct interpretation would involve a reasonable discount for angular displacement For this reason, the most accurate and comprehensive portrayal of the exact position and the extent of the erosion is often obtained by the stereoscopic method, in which the stereoscopic shift is made along a vertical line rather than along the usual horizontal line, for reasons apparent to those versed in stereoscopic roentgenography in general To obtain the most valuable average line as a gross measure of the ulcerative process, roentgenograms may be made at a considerably lower angle than for demonstration of the apexes, although an elongation of the dental shadows themselves will result

Whether or not the general line limiting the ulcerative process can be followed across the shadows of the roots themselves, it will usually show plainly in the region of the septal bone Wherever the teeth are normally spaced and the septal bone abundant, the marginal dissolution at the interspaces is very plain In case the teeth are closely crowded and the septal bone small in amount, or when for any cause the ray angle used in the exposure was such that a lateral overlapping of dental shadows has resulted, the depth of septal bone is indeterminate Inasmuch as the septal bone erosion is usually less than that in the immediate vicinity of the peridental membrane, the amount of septal destruction is not to be taken as the true limit of the encroachments of the disease on the jaw Rather, this must be based on a careful observation of the integrity of the bone enveloping the peridental membrane farther toward the apex Often a lateral or circumferential absorption can be followed deeply toward the apex This appearance denotes a localized pyorrhea pocket, and is often concentrically funnel shaped In conjunction with this funnel shaped dissolution, which extends around the tooth to a greater or less depth beyond the line of septal erosion, is often seen a more delicate partial decalcification of the

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SOME STUDIES IN THE TREATMENT OF PYORRHEA ALVEOLARIS *

GEORGE BAILEY HARRIS, D.D.S., Sc.M.
DETROIT

In the consideration of the treatment of pyorrhea alveolaris, as with any other disease, we must presuppose a knowledge of the disease. There are, however, so many conditions suggested as being causative factors in pyorrhea, that it is hardly possible to assume that any one of them is responsible for pyorrhea, to the exclusion of the rest. Among the conditions which have been advanced as being causative agents in pyorrhea might be mentioned syphilis, rheumatism, liver affections and autointoxication. These conditions and any other which will lower the resistance of the tissues must be considered as causative factors in pyorrhea, and their eradication, wherever possible, must be accomplished when the treatment of pyorrhea is undertaken.

Pyorrhea should be looked on as an infectious disease and treated as such. Its inception, then, is based on the resistance of the tissues to bacterial invasion, which must be lowered before the infection can be overcome. This means the building up of the resistive forces throughout the entire body, as it is difficult to perceive how the resistance, under these conditions, can be raised in the gum tissues alone. This must be done not only to throw off the present infection but also to guard against its recurrence. The lowered resistance to the tissues surrounding the teeth is due, in many cases, to the well known calcium deposits and irritations produced by faulty dental work. These conditions must be corrected.

If, however, we better understood the causes of pyorrhea and knew more about the tissues most vitally involved in making a repair, we would be able to treat this disease more intelligently, and there would result a greatly increased number of recoveries.

I have been greatly surprised at the wonderful recuperative power of the cementum. The literature relating to this tissue is confined, in the main, to its description and histologic structure, very little being said about its use. Cementum is the bond between the teeth and the bone, the tooth and bone seemingly being unable to form a union themselves. It seems to have about the same recuperative power as bone, and, furthermore, under proper conditions, cementum has the power to regenerate, after it has been cut in grooves or removed entirely from the root, provided a sufficient amount of the cementum is left on the root from which regeneration can take place. If, however, a large portion of the cementum is removed and the remainder then weakened or entirely destroyed by such mild germicides as trichloracetic or sulphuric acid, we should not expect to have any reformation of the cementum. When this is done, we might just as well take the next step at once and extract the tooth as wait and do the same thing at a later date or let nature throw it off herself.

Some time ago I had occasion to make an upper denture for a woman about 50 years old. She had worn full upper and lower dentures for some twenty years. On examining her mouth I noticed an enlarged and inflamed surface in the region of the second bicuspid. She informed me that it had been giving her trouble for a long time and that she had to have a place cut out of the denture to avoid pressure on it. I opened into it and removed about one third of the root of the second bicuspid, which had been broken off when the tooth was extracted. The one side was flattened, but there were no sharp edges. A cross-section was made, and when put under the microscope it was found to be completely encased in cementum, the cementum on the flattened surface being nearly a third thicker than the other. A section made near the apex of the root showed a normal condition, with no variation in the thickness of the cementum. When this root was extracted, instead of breaking off at right angles, it split at an angle, and the cementum remaining not only regenerated sufficient tissue to cover that portion of the root that had been stripped of its cementum, but a third more. Dr. Fletcher has recorded a case in which the crown had been broken off in an attempted extraction, and the cementum had not only grown over the dentin but also had partly filled the canal. In this case, too, the cementum which had grown over the dentin was much thicker than normal. These cases seem to show that we may expect a restoration of tissue to a great extent, if not entirely, provided the conditions governing such a growth are ideal. This means that the new cementum forming must not be removed daily or weekly in the overzealous use of scalers and files, nor must the healthy cementum and paradental membrane be removed. To get something, something must be left. The regeneration of the cementum must be the result of stimulation, brought about by the careful use of the affected teeth, and there must be an active blood supply. This can be encouraged by careful but not too diligent massage, and the absence of astringent mouth washes. The teeth must be cleaned, not merely brushed.

The bacteria commonly found in pyorrhea are constantly present in the mouth. If oral hygiene is a common practice with the individual, their numbers are greatly lessened; if not, they become very abundant. A person can go for years with ill fitting crowns and maintain an ideal condition for the development of pyorrhea. That is resistance, and when it is lowered, pyorrhea follows quickly. As long as he maintains that resistance, he is immune; but as soon as it is lowered, pyorrhea overtakes him. In order to recover, that resistance must be returned; otherwise the pyorrhea will only be kept in check, never cured. To prevent the formation of tartar deposits, after they have been removed, Epsom salt is most proficient. It might be said that constipation plays an important part in the formation of these deposits, and should form a sort of index in cases of chronic constipation.

There are a great many pathologic conditions which have or are supposed to have their origin in mouth infections, of which pyorrhea is a common and important one; but it must be remembered that there are lots of people with arthritis who are wearing full upper and lower dentures and have been so doing long before they become afflicted with arthritis. There are a great many cases of arthritis that have their foci in the mouth, but these infections are sometimes present in cases of arthritis, the removal of which does not result in the disappearance of arthritis to any degree. In these cases, therefore, while there may be pyorrhea and other foci of infections present, and while every effort must be made to eradicate them,

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The fact that pyorrheal manifestations are very frequently observed, without the investigator being able to obtain any confirmatory diagnosis of some form of malnutrition, is generally due to the fact that impairment of the vital organs progresses very slowly, and that frequently with our present day methods it is impossible to make a correct diagnosis until the disease has reached an advanced stage

When, finally, as the organic disease increases, a correct diagnosis is made, it is not uncommon to find that this organic disease is believed to be caused by the pyorrhea The poor diagnostic sense of the uninformed dentist is the cause of this frequent error in diagnosis, this placing of the cart before the horse While an abnormality of some important organ or organs of the body is generally the predisposing cause, we see other types of pyorrhea where the predisposing cause is the decrease in functional power of the teeth themselves Here loss of teeth by extraction, irritation under the gingivae from unpolished fillings, and every type of malocclusion become the predisposing causes instead of their being caused by some organic disease

Every dentist will corroborate the great variation in the mouth picture which presents itself in different pyorrheal cases We see the case without any deposit on the root in strong contrast with those in which these deposits seem to overwhelm all the exposed root structure We see the gum abnormally dry and parched in contrast to those cases in which the mucous follicles are constantly excreting varying quantities of fluids There is the pale anemic gum in contrast to the ruby red inflamed gum We find pockets under the gums free from suppuration or exudation, in contrast to those cases in which there are purulent discharges, and the gums are so inflamed and spongy in character as to bleed on the slightest provocation There are cases in which the gingival border is atrophied to a knife blade edge in contrast to every type of hypertrophied tissue The gums at times will be found in all possible shades of color, and in certain cardiac diseases there is a sharp division line between a normal pink and dark blue in the gums in the same mouth

We find no such variation in symptoms in any infectious disease Smallpox, tuberculosis, typhoid fever, measles, syphilis, yellow fever, diphtheria, etc, all possess well defined symptoms, which mark them unmistakably as the disease in question

In interstitial gingivitis or pyorrhea alveolaris, the clinical appearance is but a reflection of the predisposing cause Each different picture will always be found associated with one particular predisposing cause A carefully recorded study of these different pictures will soon make the observant stomatologist familiar with at least some of the more common types of malnutrition, and after a time he can readily recognize them on sight

It has been my good fortune, because of experience with these clinical pictures, to have frequently been the means of directing the patient in the early stages of some serious ailment in keeping with rational treatment It is impossible to estimate too highly the value of such a diagnosis being made in an early stage It is wrong for us to discuss this subject as though we were speaking of some specific disease instead of addressing ourselves to pathologic symptoms of one of many diseases

The time will come, when the subject is under discussion, that it will be confined to the particular malnutrition causing a given type of pyorrhea In 1894, I presented such a method of classification by prefixing or adding an adjective stating the name of the disease, which is causing the pathologic symptoms in the oral cavity, as "diabetic pyorrhea," "tuberculous pyorrhea," etc Only under such a classification can rational discussion be held on this subject. Take, for example "nephritic pyorrhea" and "diabetic pyorrhea" While renal abnormalities occur in the predisposing cause in each type, nevertheless, the symptomatology and treatment should be entirely different in each type When this point is conceded, due importance will thereafter be given to the necessity of making clear the nature of the predisposing cause of the cases under discussion

It is well understood in general surgery that operative procedure is attended with great danger to life itself in patients suffering from diabetes not under control Consequently, the same danger to life exists when surgical interference is commenced in pyorrhea when there is present an active condition of diabetes The at one time well nigh universal habit of dentists using surgical intervention in diabetics without making any diagnosis of the predisposing cause has produced its quota of fatal consequences In advanced stages of fatal diseases, it would be unnecessary brutality to subject the patient to the discomforts of surgery On the other hand, when the disease is curable, it is of great importance that the stomatologist should be given an accurate statement by the internist of every body disturbance, so that all local treatment should proceed in therapeutic harmony with the general treatment

Prognosis of pyorrhea or gingivitis must largely depend on the possibility of obtaining a cure of the malnutritional factor It is for this reason that the results of all physical examination, etc, should be in the hands of the stomatologist, so that he cannot only work in harmony with the physician, but also keep accurate record of any tissue changes that may take place

When the preponderating importance of an accurate diagnosis of the predisposing cause of pyorrhea is appreciated, an important factor in the maintenance of our point of view is established to the effect that the dentist treating these and all other mouth diseases should be as efficiently educated in general medicine as is the specialist in any other department of medicine

38 East Sixty-First Street

Heredity and Cancer—A committee of the life insurance companies in cooperation with the American Society for the Control of Cancer in a recent investigation on various phases of the cancer problem, found, among other things, from the records of a large life insurance company, that among 20 000 applicants for life insurance whose parents had both died of cancer, only four had cancer Out of 492 instances in which one or both parents had died of cancer, 43 per cent of the other parents had died of some other disease, 56 per cent were living at the average age of 61, and less than 1 per cent (four out of 492) had died from cancer—Arthur Hunter, President, Actuarial Society of America, *Insurance*, Dec 22, 1916

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38 East Sixty-First Street

Heredity and Cancer —A committee of the life insurance companies in cooperation with the American Society for the Control of Cancer in a recent investigation on various phases of the cancer problem, found, among other things, from the records of a large life insurance company, that among 20,000 applicants for life insurance whose parents had both died of cancer, only four had cancer Out of 492 instances in which one or both parents had died of cancer, 43 per cent of the other parents had died of some other disease 56 per cent were living at the average age of 61, and less than 1 per cent (four out of 492) had died from cancer —Arthur Hunter, President, Actuarial Society of America, *Insurance*, Dec 22, 1916

SOME STUDIES IN THE TREATMENT OF PYORRHEA ALVEOLARIS [*]

GEORGE BAILEY HARRIS, D D S, Sc M
DETROIT

In the consideration of the treatment of pyorrhea alveolaris, as with any other disease, we must presuppose a knowledge of the disease There are, however, so many conditions suggested as being causative factors in pyorrhea, that it is hardly possible to assume that any one of them is responsible for pyorrhea, to the exclusion of the rest Among the conditions which have been advanced as being causative agents in pyorrhea might be mentioned syphilis, rheumatism, liver affections and autointoxication These conditions and any other which will lower the resistance of the tissues must be considered as causative factors in pyorrhea, and their eradication, wherever possible, must be accomplished when the treatment of pyorrhea is undertaken

Pyorrhea should be looked on as an infectious disease and treated as such Its inception, then, is based on the resistance of the tissues to bacterial invasion, which must be lowered before the infection can be overcome This means the building up of the resistive forces throughout the entire body, as it is difficult to perceive how the resistance, under these conditions, can be raised in the gum tissues alone This must be done not only to throw off the present infection but also to guard against its recurrence The lowered resistance to the tissues surrounding the teeth is due, in many cases, to the well known calcium deposits and irritations produced by faulty dental work These conditions must be corrected

If, however, we better understood the causes of pyorrhea and knew more about the tissues most vitally involved in making a repair, we would be able to treat this disease more intelligently, and there would result a greatly increased number of recoveries

I have been greatly surprised at the wonderful recuperative power of the cementum The literature relating to this tissue is confined, in the main, to its description and histologic structure, very little being said about its use Cementum is the bond between the teeth and the bone, the tooth and bone seemingly being unable to form a union themselves It seems to have about the same recuperative power as bone, and, furthermore, under proper conditions, cementum has the power to regenerate, after it has been cut in grooves or removed entirely from the root, provided a sufficient amount of the cementum is left on the root from which regeneration can take place If, however, a large portion of the cementum is removed and the remainder then weakened or entirely destroyed by such mild germicides as trichloracetic or sulphuric acid, we should not expect to have any reformation of the cementum When this is done, we might just as well take the next step at once and extract the tooth as wait and do the same thing at a later date or let nature throw it off herself

Some time ago I had occasion to make an upper denture for a woman about 50 years old She had worn full upper and lower dentures for some twenty years On examining her mouth I noticed an enlarged and inflamed surface in the region of the second bicuspid She informed me that it had been giving her trouble for a long time and that she had to have a place cut out of the denture to avoid pressure on it I opened into it and removed about one third of the root of the second bicuspid, which had been broken off when the tooth was extracted The one side was flattened, but there were no sharp edges A cross-section was made, and when put under the microscope it was found to be completely encased in cementum, the cementum on the flattened surface being nearly a third thicker than the other A section made near the apex of the root showed a normal condition, with no variation in the thickness of the cementum When this root was extracted, instead of breaking off at right angles, it split at an angle, and the cementum remaining not only regenerated sufficient tissue to cover that portion of the root that had been stripped of its cementum, but a third more Dr Fletcher has recorded a case in which the crown had been broken off in an attempted extraction, and the cementum had not only grown over the dentin but also had partly filled the canal In this case, too, the cementum which had grown over the dentin was much thicker than normal These cases seem to show that we may expect a restoration of tissue to a great extent, if not entirely, provided the conditions governing such a growth are ideal This means that the new cementum forming must not be removed daily or weekly in the overzealous use of scalers and files, nor must the healthy cementum and paradental membrane be removed To get something, something must be left The regeneration of the cementum must be the result of stimulation, brought about by the careful use of the affected teeth, and there must be an active blood supply This can be encouraged by careful but not too diligent massage, and the absence of astringent mouth washes The teeth must be cleaned, not merely brushed

The bacteria commonly found in pyorrhea are constantly present in the mouth If oral hygiene is a common practice with the individual, their numbers are greatly lessened, if not, they become very abundant A person can go for years with ill fitting crowns and maintain an ideal condition for the development of pyorrhea That is resistance, and when it is lowered, pyorrhea follows quickly As long as he maintains that resistance, he is immune, but as soon as it is lowered, pyorrhea overtakes him In order to recover, that resistance must be returned, otherwise the pyorrhea will only be kept in check, never cured To prevent the formation of tartar deposits, after they have been removed, Epsom salt is most proficient It might be said that constipation plays an important part in the formation of these deposits, and should form a sort of index in cases of chronic constipation

There are a great many pathologic conditions which have or are supposed to have their origin in mouth infections, of which pyorrhea is a common and important one, but it must be remembered that there are lots of people with arthritis who are wearing full upper and lower dentures and have been so doing long before they become afflicted with arthritis There are a great many cases of arthritis that have their foci in the mouth, but these infections are sometimes present in cases of arthritis, the removal of which does not result in the disappearance of arthritis to any degree In these cases, therefore, while there may be pyorrhea and other foci of infections present, and while every effort must be made to eradicate them, we must not devote all energy to these infections to the exclusion of foci in other parts of the body which may be the chief foci, and relief cannot be had until they are located and removed Further, there are many roentgenograms which show rarefied areas around the apexes of the roots that are rightly interpreted as being foci of infection, but it must also be remembered that there are lots of others which show the same rarefied areas which are not foci of infection, being localities in which there possibly once was a focus but which has been removed, and the tissue not yet completely filled in, which may never completely take place This is amply proved by using an aspirator and removing a portion of the content of that supposed focus, only to find it to be nearly free from bacteria Except in extreme cases, therefore, there is no justification for the extraction of a tooth, simply because a roentgenogram showed a rarefied area, unless substantiated by other diagnosis The extraction of teeth, in an effort to check infections in other parts of the body, just because a roentgenogram showed a rarefied area, except in extreme cases, is to be condemned If this practice is to be indulged in, it must have its completion in the extraction of all devitalized teeth whether or not the Roentgen ray shows a rarefied area to be present Also all teeth that are pyorrheic would have to be extracted because they are foci of infection, and those that are not yet affected would have to be extracted because they might become foci of infection

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[*] Read before the Section on Stomatology at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June 1916

THE ETIOLOGY AND TREATMENT OF INTERSTITIAL GINGIVITIS *

EUGENE S TALBOT, M D DDS
CHICAGO

My researches on interstitial gingivitis and pyorrhea alveolaris[1] were published in book form in 1899 In this work every conceivable phase of the disease was studied on animals as well as man The pathology was beautifully illustrated from its beginning to the formation of abscess, on the one hand, and exfoliation of the teeth, on the other

The object of this paper is to try to make clear the etiology, pathology and treatment based on the researches laid down in my work

The tissues about the roots of the tooth may become diseased under extreme local irritation or from constitutional disease, but as a rule the progress of tissue building about the first and second set of teeth prevents tissue degeneration Not until the bone has obtained its growth, from 27 to 35 years of age, does degeneration take place to any great extent, although marked inflammation of the gums may be present When the alveolar process has obtained its growth about the second teeth, the bone may be said to have reached the senile stage, and absorption under favorable conditions begins

THE ETIOLOGY

In considering the etiology of interstitial gingivitis, my researches have shown that the tissues surrounding the roots are end-organs, owing partially to the fact that the teeth, so far as nerves and blood vessels are concerned, are foreign bodies, and partly to the end-structure of the bone An end-organ is a structure in the body in which nerves and arteries extend to the extreme end and then stop The veins being extremely sluggish, the blood containing poison remains, and, being unable to return, sets up a low form of inflammation The dental pulp is the best example of an end-organ in the human body A study of this structure under the microscope, of persons over 40 years of age, will reveal all the degenerative pathologic conditions possible[2]

The blood, then, which flows into the alveolar process, owing to local irritation about the gum margin or root of the tooth, does not return into the circulation Blood charged with metallic, drug or body poisons collects in the alveolar process and produces irritation Stasis results (Fig 58, Interstitial Gingivitis[1]), nutrition is cut off, and a low form of inflammation is produced Nerve end degeneration takes place, endarteritis obliterans, and arteriosclerosis occurs

Ziegler[3] says

> The causes of inflammation may lie either in mechanical, thermal electrical or chemical influences, as well as in the influence of parasites The common characteristic of all these injurious agencies is the production, in the first place, of a local tissue degeneration, which, when of a certain extent and intensity is associated with disturbances of the circulation and of vascular secretion

This exactly describes the condition found in the alveolar process Stasis of blood in interstitial gingivitis is, then, due to mechanical irritation and possibly chemical changes in the blood

Ziegler[3] again says

> Under the designation inflammation are grouped those pathological processes, consisting on the one hand of tissue degenerations and tissue proliferations, and on the other, pathological exudations from the blood vessels

In this particular form of inflammation, tissue degeneration takes place There is no pain, heat or swelling as observed in the other forms of inflammation

When we consider the peculiar endotransitory nature of the alveolar process, degeneration of tissue is the natural result At the senile period when the excretory organs are diminishing in activity and in disease, vital resistance is at its lowest ebb, metabolism is diminished, and degeneration and absorption of the alveolar process is in active operation As age advances, the destruction of bone is a natural normal pathologic process

The disturbances in circulation bring about tissue degeneration because the gingival border of bone is very thin, transitory and easily destroyed The action of this mechanical irritation is to produce artery changes, nerve end degeneration and absorption of bone about the arteries, called halisteresis Stasis of blood may take place in a circumscribed area, or on the entire border of the alveolar process, or the apical end of one or more roots may be involved This depends on the nature and quality of the irritant The nature and severity of the irritation, stasis of blood and a lowered vitality of the patients will also determine the extent of the destruction of tissue, whether the irritation is located at the apical end of

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[2] Talbot E S Developmental Pathology Boston, Richard G Badger 1912, chapter on the dental pulp

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the root, midway between the apex and the cervical margin, or at the cervical margin

When the inflammation has once become established at the cervical margin, the absorption is progressive to a greater or less extent until the tooth or teeth are removed Owing to the transitory nature of the alveolar process when irritation and stasis of blood occur, the nutrition of the part is interfered with and the bone tissue may be partially or wholly destroyed, leaving the fibrous tissue (trabeculae) undisturbed, thus holding the tooth firmly in position, although it can be moved laterally by the fingers In most cases, however, the entire structure, including the fibrous tissue, is destroyed

My researches have shown that the deposits on the roots of the tooth, other than tartar, are the detritus of destroyed bone and not deposits from the blood, as was formerly supposed The pus stage is an afterconsideration, and has nothing to do with the disease

In summing up the etiology, then, in this disease 1 We have to contend with the bone as an end-organ in which the blood accumulates (stasis) 2 Stasis of blood cuts off nutrition 3 Local and constitutional irritation and chemical changes in the blood set up a low form of inflammation and bone absorption 4 The absorption is enhanced because of the transitory nature of the alveolar process 5 Nerve end degeneration and arteriosclerosis occur 6 Want of vital resistance assists absorption

LOCAL TREATMENT

The first symptom of interstitial gingivitis is bleeding of the gums on the slightest injury The classification of the different phases of the disease renders the treatment, so far as we are capable of directing it, simple and easy

The first thing that naturally comes to the mind of the operator is to remove the cause The local treatment may begin immediately For personal reasons of cleanliness of the patient and the operator, one or two applications of iodin should first be made to the gums, which will destroy the germs and cleanse the mouth After this has been accomplished, the removal of all local irritation may begin

We have seen that stasis of blood cuts off *nutrition*, causing degeneration of tissue (absorption of bone). *The main object to be obtained in the treatment of this disease is to remove the stagnant blood, reestablish the metabolic process and cause a normal flow of fresh blood to nourish the parts* The nutrition of the part must be renewed that Nature may restore the tissues to health

How shall this be accomplished? To remove congested blood, physicians, from fifty to a hundred years ago, resorted to cupping, leeches and scarifying the tissues These methods must be resorted to at the present time in treating this disease If the gums are congested and festoons hang down between the crowns of the teeth, they may be removed on a line with the alveolar border with a lance

The gums should be allowed to bleed as freely as possible In removing the deposits from the roots of the teeth, the parts may be injured as much as possible with as little pain to the patient as possible, the germs having first been destroyed In this way much of the congested blood can be removed

The suction process, not unlike the old method of cupping, is excellent when properly performed

Scarifying the gums is also a good method of procedure Vigorous gum massage with a stiff gum massage brush should now be employed to stimulate the tissues to healthy action

Before the operation and after bleeding, iodin should frequently be employed to destroy all germs in the mouth All loose teeth should be removed

The following preparation has been used since 1878

Water	10 parts or grams
Zinc iodid	15 parts or grams
Iodin	25 parts or grams
Glycerin	10 parts or grams

The iodin destroys all germs in the mouth and cleanses the tissues The zinc iodid is used to contract the tissues, the glycerin to assist absorption This preparation is applied to the gums, teeth and mucous membrane by a long, slender applicator with cotton wound about the end It should be applied as often as every other day if possible It is not to be used by the patient

Friction and stimulating methods must be employed by the vigorous use of a "gum massage brush" The brush should be so shaped that it will reach the festoons between all the teeth

It should be made of the stiffest unbleached bristles that can be obtained The brush should be inserted into the mouth, the mouth and teeth closed In performing this operation the mind should be concentrated on the gums and not the teeth When the tissues have become revitalized, deposits from the alveolar process on the roots of the teeth will cease to form

One of the best gum washes for the patient to use in connection with "gum massage" is that of the zinc sulphocarbolate recommended by Dr W H Whitslar of Cleveland This drug may be used in different strengths and in many forms The following is a combination which I use

GUM WASH

Zinc sulphocarbolate	60 grains
Alcohol	1 ounce
Distilled water	2 ounces
True oil of wintergreen	8 drops

The patient should use this gum wash and massage the gums three times a day The patient should be under the care of the operator at least two or three times a week, so that he may direct the treatment The treatment of interstitial gingivitis at the apical end of the roots must be carried out according to symptoms

CONSTITUTIONAL TREATMENT

While the local treatment is being conducted, the patient's general health should be inquired into A twenty-four hour sample of urine should be obtained, and a thorough laboratory examination made If there are casts and high acidity, and indican is abundant, meat should be excluded, the patient placed on a vegetable diet, and the acidity reduced The bowels should be kept open and large quantities of water consumed There are many methods of cleaning the system and bowels The following may be used to good effect, a teaspoonful in half a glass of warm water every four hours

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By this method of treatment the patient, in the estimation of the average dentist, is cured, not, however, as other diseases of the body are cured Eternal vigilance is necessary on the part of both operator and patient to prevent blood from again collecting in the blood vessels of the alveolar process, and a return of the disease

The bone is still an endotransitory structure, and having once become diseased, it is much easier for the stasis of blood again to take place As the patient advances in years, the excretory organs become senile, poisons collect in the blood, resistance is lowered, and there is a gradual absorption of bone taking place about the teeth throughout life

31 North State Street

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS LESCOHIER, POTTER, RHEIN, HARRIS AND TALBOT

Dr Arthur D Black, Chicago The first most outstanding feature of the pathology of this group of diseases is their chronicity and this has possibly contributed much to the difficulty of a clear understanding of the pathology This condition, which I will term a chronic suppurative pericementitis, will, in the average case, be progressive extending over ten fifteen or even thirty years In those cases where we have a systemic cause as the principal one, we would naturally expect to find a general involvement of the peridental tissues Except for some added local exciting cause, there is no reason why one or a few teeth should be picked out, all of the teeth should be included in the manifestation of the disease where the systemic condition is the principal cause On the other hand, in those cases where a limited number of teeth are involved, we would naturally expect to find that the local exciting causes had played the primary role As to the bacteriology many men have endeavored to find a specific organism which could be associated with this disease, and they have failed One fact argues against a specific organism as being the cause, and that is the progress in these pockets, and this progress is very much more rapid toward the apexes than laterally around the roots We observe many cases in which from an original pocket there have developed a number of other surface pockets, without any involvement of contiguous surfaces of the teeth The tendency is for a tooth to move away from the side of the pocket, because encircling each tooth are the fibers of the peridental membrane These are on a tension and when the tissue is destroyed on one side of the root the balance of those fibers is lost, and the fibers of the opposite side draw the tooth in that direction, unless some obstruction of occlusion prevents this There never is a detachment of the peridental membrane alongside the root that is not preceded by a gingivitis In the destruction of the tissues about the root one of the earliest manifestations of the presence of a pocket alongside the root is a stripping off of these tissues from the cementum As time passes there is left a connective tissue which has nothing which may differentiate it from a general connective tissue Those elements which are necessary to a normal reattachment of tissue to the tooth are lost What else has happened? The cementum has absorbed the products of that suppurative process It has been changed from a positively chemotactic tissue into a negatively chemotactic tissue, which will repel tissue attachment

As to rebuilding of the cementum I have examined many cases and seen many in which there has been an absorption, not only of the cementum, but of a considerable portion of the dentin of the tooth, but I have never seen any in which there was a detachment in that area They were not infected cases, there had been no suppuration They were not cases in which, if you leave the end of a root, you will find cementum building over it Dentin has no power of rebuilding cementum Some one said it was closely comparable to bone It is, except that it has no circulation Its life depends on the cementoblasts on its surface No changes take place within it As the pocket progresses farther down the side of the root, we must expect the first absorption of the alveolar process to take place near the crest, and then as it continues around the root, in cases of long standing we have a funnel formation in the bone That is one of the marked symptoms of progress of this disease I would like to criticize Dr Potter's use of the term erosion in connection with these destructions or absorptions of the bone It seems to me that the term rarefication is hardly applicable to these cases, because the bone is either destroyed or absorbed Dr Potter spoke of looseness and tightness of some of these teeth Many times we have a very loose tooth, so far as motion is concerned, and yet it is difficult to extract As a result of inflammation, the fibers of the peridental membrane which remain attached to that tooth have lost their tonicity, they are not taut, and are apparently lengthened considerably, so that the tooth has an excessive motion, which does not at all compare with the amount of destruction of tissue which has occurred Treatment will tone up those fibers and they will again exert their normal pull

Dr Floyd D Leach, Chicago There is a certain amount of tooth movement laterally, that is, from buccal to lingual Dr Black said something about a peculiar action of the micro organisms which caused a destruction of the investing tissues of the teeth, especially along the proximal surfaces of the roots We have all seen this condition, causing the breaking down of the contents, due to the lateral motion in the act of mastication It is not easy to guess or feel quite sure that those fibers of the peridental membrane which die to the buccal, labial and lingual sides of the socket should take the mechanical strain I have an idea this condition may be the reason why the progress of the destruction is more pronounced on the proximal surfaces of the roots than on the buccal labial and lingual You have always noticed that the pockets are really on the interproximal surfaces The gum would recede from the lingual labial and buccal surfaces of the roots, and still in a great many cases be very firm as to attachment Food substances constantly massaging these areas, and the friction of the brush when a brush is used in cleansing the gums and teeth stimulate to a greater extent those areas on the buccal, labial and lingual surfaces But I think the mechanical arrangement of the fibers adds more resistance more tone and more strength to these buccal, labial and lingual vestiges

Dr Russell W Bunting Ann Arbor, Mich We have been told by some that pyorrhea is the result largely of constitutional factors, and by others that pyorrhea is the result of local disturbance, such as infection and irritation Almost all have agreed that very frequently there are combinations of these two May I present this view of the situation? May we say that pyorrhea is caused by an exciting condition, such as the infection which destroys the tissues about the teeth and severs their attachment? But infection is not the determining cause? The determining factors are all the predisposing causes, either local or general, which make the characteristic action of the exciting causes possible I like Dr Rhein's statement that healthy tissues cannot be infected How often have we seen ten times the local infection that would be necessary to produce pyorrhea existing in the mouth, and no pyorrhea present? Why? Because those tissues were so healthy that they were not infected, even under very untoward local conditions If this is true, we must recognize not only the local but the general conditions as causative factors As Dr Rhein said, our constitutional factors are often so obscure that the ablest and most careful internist cannot detect where they are located, or what their nature is The infective condition alone which is present in the mouth could not have produced the pyorrhea in such cases but for that remote constitutional condition which made it possible for this to happen Fortunately, we find that very frequently the clearing up of the local causes allows the tissues to come back to an apparent normality

Can we cure pyorrhea? I have taken the stand that we cannot cure pyorrhea unless we can obliterate the pockets Dr Harris said that the pocket may be obliterated because cementum is built on the denuded surface, and that new attachment is had to the tooth Dr Black does not believe that pyorrheic teeth can ever have a reattachment We must admit that if pyorrhea is to be cured absolutely, either the soft tissues must be reattached to the tooth completely up to the free line of the gum or else the gum line must be retracted down to the place on the root at which it is attached If it is true that these tissues can never be reattached, why should we not treat pyorrhea by opening the pockets, cutting away all overlying tissue, clear down to the bottom of the pockets, exposing the healthy tissue and allow it to heal? We would then have obliterated the pocket and the pyorrhea But is that the only way in which it may be done? It is my conviction that the tissues may be made to physically join to the surface of the root after they have been denuded from it in the formation of a pyorrhea pocket, if the conditions are right I have had many specific instances of pockets, in which I could get one quarter, one half or three quarters of the length of the root with an explorer, or any other instrument, and at the conclusion of a month or two of surgical treatment, assisting the tissues to return to as near the normal as possible I have been unable to get the finest instrument between those soft tissues and the root of the tooth in the identical place where the pockets had existed previously What has taken place in those pockets? Are there any other two tissues in the body that would so approximate and still not be physically attached? I do not think so Let us take a surface view of that pocket Pyorrhea seldom goes down circumferentially, attacking the tissues equally It rather goes down one surface If we prepare this root surgically and make it clean we have remaining on either side living, healthy pericementum, which is capable of reproduction and filling in the space with new tissue This is laid down first in the form of granulation tissue from which tissues may develop having the propensity to form a bony-like material, or even true bone, which may be deposited on the surface of the root, and attach those primitive fibers, or embryonic type of transitional tissue, to the surface of that root When a root is resorbed there is in many cases entire breaking up of the fibers The bone is entirely taken out at a given area and only a transitory type of tissue remains Dr Black said that in one case the destruction was not infective and that in the other it was But was it not destroyed in both cases and what is the difference? There are cases on record in the literature in which a bone has been cut across, a section has been taken out, and in the gap there has been placed an ivory bit that reproduced as nearly as possible the bone which was removed Later that section has been removed and has been examined in microscopic section It was found that the ivory had about it a layer of new bone which was quite like a lamellar bone placed on the outside of the ivory Outside of the bony layer a soft tissue formed, quite like periosteum These tissues had adapted themselves to form a direct attachment of soft tissue by a bone forming process to the ivory, in which there was no circulation without which Dr Black stated reattachment could not occur We are told that exactly the same thing has been done with platinum in which bone has been laid on top of platinum and the soft tissues glued to the platinum in the same manner

Dr Eugene S Talbot, Chicago I conceive an entirely different condition of things than has been explained to you by Dr Black and Dr Bunting in regard to pockets There is no question about the pathology It is all laid down in my work and has been verified in a great many different methods of experimentation My own researches explain that many of the statements, made by Dr Black and Dr Bunting, are much more simple than the points brought out by them For instance arteries run through the alveolar process and the peridental membrane When irritation takes place, whether local or constitutional, the artery is filled with irritation If constitutional, it may be poison, if local, it may be anything that produces a local irritation If you will examine the illustrations in my book, you will find that the bone extends around the artery The irritation, then, is set up in and around the artery, and if there are a dozen arteries there are a dozen points of irritation, inflammation and absorption, and the absorption starts out from the artery We will say that this irritation is due to lead or mercurial poison That material is carried down into the artery, and it may extend clear to the end of the root What has taken place? Absorption has taken place around that artery and only one artery is involved Absorption has gone down to the end of the root But if the irritation is greater, either constitutional or local, these arteries passing in a lateral direction, as well as those passing longitudinally, may absorb the entire process on the one side of the tooth, while absorption has taken place downward in the other case clear to the end of the root in one or two arteries To explain Dr Bunting's point about filling up of the alveolar process with new material if the inflammation has extended down the side of the root, with one two or three arteries involved, the bone is liable to heal up if the cause is removed If, on the other hand, the bone has been entirely destroyed downward and pockets have been formed, that bone is never restored, because the fibrous tissue is entirely lost Bone absorption takes place by halisteresis before the fibers of the peridental membrane are destroyed—just the reverse of Dr Black's idea

Dr Meyer L Rhein, New York Not a thing has been said in regard to cemental repair that can be denied under certain conditions, and yet we have listened to statements that appear to be absolutely in opposition to each other I know that Dr Bunting is correct in what he has said I know that exposed cementum can be repaired and the normal condition replaced, but each of the speakers has omitted to state in what conditions repair or lack of repair, takes place Dr Talbot gave a very lucid description of what takes place in the tissue when arteriosclerotic conditions manifest themselves We get these conditions in certain forms approaching the period of senility, in certain forms of malnutrition, nephritic and diabetic conditions, and under such conditions that repair of the kind that Dr Bunting spoke of is impossible Why does a pocket form? We get a pocket on account of imperfect nutrition to that particular spot and as a consequence there is the impossibility of repair which must ordinarily take place throughout the body daily The same conditions that produce pyorrheal conditions are at work in erosion, where there is found a continuing loss of gum tissue, exposing the root surface except that the local resistance, due to many causes has prevented infection from taking place In other words, in the retraction of the gum which results in the exposure of considerable of the root surface of the teeth, we meet with the same lack of nutrition that is demanded at every ultimate point of nutritional circulation Pyorrhea may occur in people suffering from fatty degeneration about the heart What are the appearances of the mouth in this condition? There is no suppuration There is no deposit on the roots, but very extensive pockets that frequently go down deep, and we find the gum in ribbons over these pockets They are great big flabby pockets, with a deterioration in color and character of the circulation I have never seen one with any purulent condition I have seen those gums come back absolutely to what we would consider comparatively healthy gum tissue under the Nauheim treatment If the malnutritional factor has disappeared after treatment, you may call that patient cured What is the reason that exposed cementum considering that there is no condition of malnutrition present will not permit the tissues to recover? It is due to the fact of exposure of this cemental surface to the irritating fluids that are in circulation I believe it will take exceptional conditions to permit a cemental surface that has suffered abrasion to repair because of the danger of retrograde metamorphosis going on from its exposure to the fluids of the mouth, consequently the therapy must be of such a mechanical nature to cover that cementum that it will not be exposed to the fluids of the mouth I have done this for many years by coating the surface of such cementum with chloropercha, keeping the exposed cementum hermetically sealed and thus protecting it from the fluids of the mouth

Dr George B Harris, Detroit I have been misunderstood a little in regard to the regeneration of cementum In the first place, I do not wish to be understood as saying a complete regeneration takes place The point I wanted to bring out is that there are cases in which the cementum has regenerated, and these cases were not under aseptic conditions Can anybody imagine the crown of a tooth cut off below the gingival margins or split half the length of the root with the cementum forming over it, and say that this portion was in an aseptic condition? I do not believe it Further, where the cementum is diseased we can remove it, leaving nothing but the healthy cementum below, producing a condition that is as near aseptic as it is possible to get under the conditions, a condition at least equal to those mentioned where the cementum did reform It is possible, then, that the cementum will reform there Whether it ever has or not, I do not know, because there is no way of measuring it as it takes place in the mouth, unless you would happen to find a tooth where the difference in density of the cementum will show, or where it would be shown by the new cementum making a thicker coating

Dr G H Smith, Medina, O This subject of pyorrhea has been of intense interest to me for five years, and I would like to suggest to the medical profession that they advise more of their patients to select an ethical dentist Dr Moorehead made a statement in his address that I can hardly substantiate He claims that only 10 per cent of the dentists were efficient There are dentists commercializing, but with the cooperation and advice of the medical profession many patients would escape many dental disorders

Dr William C Fisher, New York I want to ask Dr Rhein if I understood him to say that in a diabetic patient he would not consider operative procedure as being wise, or that it had been known to even be fatal?

Dr Rhein Correct I said diabetes not under control

Dr Fisher I am not thoroughly convinced that a dental operation is precluded in any patient—diabetic or otherwise—who is able to visit your office and go about his business I believe of course, in the medical treatment, but I certainly think that there is absolutely no shock such as that experienced in a major operation while treating these patients In pyorrhea I use the several solutions of iodin Dr Talbot spoke of gum massage with the brush Do you mean the hand or engine brush?

Dr Talbot The hand brush

Dr Fisher I was afraid that possibly you meant the engine brush In polishing teeth we want to get away from anything that will in any manner injure or tear the tissues, and I have devised a simple little mandril of one piece of steel I use French tubing of different sizes to fit and make my polishing powder, mixing in with that iodin As this mandril revolves in the engine, the French tubing will flare out on the surface and coax up the gum whether receded or not, and polish the surface beneath the gingiva In the interproximal spaces select a smaller piece of tubing and it is possible to get a polished surface there With that method you get a massaging of the gum which the patient cannot possibly give it You are massaging the gum at the same time that you are polishing the neck of the tooth where it has been scaled

Dr W A Price, Cleveland Two decades find us almost exactly where we were when I started to practice dentistry twenty-three years ago We cannot come together and express a common idea relative to the etiology of pyorrhea and be united in supporting and substantiating it We have made practically no study whatever of protein absorption, which takes place around these pyorrheal infections A large number of nervous lesions of the body have apparently been traced directly to dental infections and to pyorrhea. The medical profession must bring these patients back to us for treatment, and we cannot even give the A, B, C of the infection in pyorrhea We do not know the nature or the morphology of 50 per cent of the bacteria that grow in pyorrhea pockets They have not been grown artificially What is the solution? If I were to ask Dr Talbot how he got his information that has been the great cornerstone for a large part of this work he would say 'Hours and hours, and days and days, and years and years of hard work" How many men are devoting a worthy effort to this work? We are called on to redouble our efforts to answer with some degree of intelligence this great question of the etiology of pyorrhea, which today we know almost nothing about

Dr Hollis E Potter Chicago I can see now that the pockets we are showing with the Roentgen rays represent more absorption of bone than any such slight detachment as you have been talking about I should think that in cases where we are showing Roentgen ray findings of absorption around a tooth, when we are talking about a pocket it is a very gross condition as compared with the small and limited pockets that the controversy is about this afternoon

Dr Alexander W Lescohier, Detroit As Dr Price said, it is possible that there are many good things we do not know about the bacteriology of pyorrhea, but there is one fact which I do believe has been established, namely, the preponderance of streptococcic infection I do not mean to imply that the streptococcus is the cause of pyorrhea bacterial infection being apparently a secondary element, characteristic of the pustular stage and not of the initial condition But, in view of its potential virulence and the persistency with which the streptococcus is found, it is indicated that certain strains have a peculiar affinity for the peridental tissues Also that as far as the sequelae of pyorrheal infection are concerned, particularly the arthritic, the streptococcus overshadows in importance other micro organisms

Dr H A Potts, Chicago May I ask if it has been determined whether or not this streptococcus which he finds in pyorrhea is an aerobic or an anaerobic one, whether hemolytic or the *Streptococcus viridans,* and what connection there is between the effects of these streptococci of pyorrheal infection and those found in chronic abscess?

Dr Lescohier I cannot answer definitely the questions raised The work of Hartzell and others has indicated that the *Streptococcus viridans* is found much more frequently than any other type, but hemolytic streptococci are also observed in some cases I would not undertake to answer the question as to the relationship between streptococci elsewhere and those in pyorrhea and alveolar abscess

Dr Meyer L Rhein, New York I do not want to let the inference go that I am oblivious to the fact that it is necessary to have an attacking organism when we come to this stage of infection There seems to be a strong elective affinity of certain micro-organisms to attack the gingival tissue dependent on certain malnutritional predisposing causes There is a type of pyorrhea due to certain kinds of malnutritional causes where the attacking organism is a protozoon I have cured three distinct cases of pyorrhea in the last two years with emetin and I failed in numerous other cases Now why should this be? It simply carries out in the ultimate analysis what Dr Lescohier's paper has shown us, that there is no one specific organism in pyorrhea The three patients I cured all seemed to have the same kind of malnutritional predisposing causes they were all cases of intense inflammation and infective conditions in the larger colon They were cases that had shown symptoms that very closely resembled epidemic forms of dysentery Now, is it illogical, is it surprising, that in a condition of that kind, where we know the endameba plays the role of attacking force, that when by reason of this predisposing cause the mouth shows the evidence of pyorrhea we should find the same organism again the attacking force? The place to find pyorrhea is not among the patients who come to the office of the dentist You will find pyorrhea almost everywhere About 85 per cent of the cases that the average dentist treats as pyorrhea are nothing more than some focal infection that has been diagnosed improperly and in which a roentgenogram would demonstrate the error of the diagnosis In chronic alveolar abscess, with its sinus opening out into the mouth sooner or later symptoms appear that approach and grossly deceive the careless diagnostician, and there is no reason why you cannot get an alveolar abscess with a pyorrhea complication, if you want to call it such, that is dependent entirely on the apical infection I have found such a condition in a considerable number of cases On careful differential diagnosis I could put my hands on the point of focal infection That is especially true in cases where there seem to be one or two teeth only subject to pyorrhea When an individual comes with a pyorrhea in one or two teeth, the diagnosis is open to grave suspicion I have found the focal infection of a pyorrhea showing in an upper incisor, away back in the roots of a second molar, and I recall quite well the difficulty of making a diagnosis in that particular case I was a little surprised at Dr Fisher's question as though I was in doubt as to whether operative interference was to be avoided in diabetics where the diabetes was not under control It is not a question of a major operation that makes a surgical condition a most dangerous proposition under such conditions I know of no surgeon who would not seriously hesitate to do the most minor surgical operation on a patient showing a large percentage of sugar It is true that under certain conditions, when it becomes a question of life or death the surgeon will take chances He knows the patient is going to die from septic causes, and he is going to give that patient the benefit of that chance The deaths from teeth extraction in diabetics would fill a very large chapter if they could be brought together

DR. FISHER Does that mean from the anesthetic?

DR RHEIN No I am simply stating what is an abstract fact that is settled in the minds of surgeons, pathologists and bacteriologists at the present time In regard to research work We have had to have recourse to animal experimentation to a large extent, and I am convinced that all the dental research work on animals in the past is replete with error, because the mouth flora of the dog is so different from the mouth flora of the human that it cannot consistently be taken as the same in any experimental work on animals This is a very important factor, and it is far better for dental research work to proceed slowly and get results that are not going to be questioned in the future than to make comparisons and arrive at conclusions that cannot be verified

DR EUGENE S TALBOT, Chicago If you will examine the dental journals, and some of the medical journals, you will find that a large percentage of the pictures that have been shown are represented as abscesses Dr Potter has shown us that there are a great many different shades or conditions of the alveolar process which are not abscesses, and the reason for that is that we have a condition of absorption called halisteresis, and not lacunar absorption in the alveolar process, which may be or is due to the irritation that has taken place from the pulp chamber The degree of absorption will depend on the amount of irritation In regard to focal infection the dental profession can hardly be blamed for abscesses at the roots of the teeth after the canals have been treated and filled Up to within the last two or three years, when an abscess formed on the root of a tooth and the face swelled or a fistula had formed, the only means of knowing that the abscess was supposed to be cured was that the face became reduced to a normal state and remained so, the fistula healed and did not return These were the only symptoms available when the tooth remained quiet without pain or swelling which led the operator to believe that the abscess was cured With the modern methods of diagnosis, the Roentgen ray, we have learned that these signs are not for a moment to be considered The Roentgen ray demonstrates that very few abscesses are destroyed and healed, but that they remain cold or blind abscesses, discharging pus into the tissues for an indefinite length of time I recall one instance in which an abscess remained on the root of a left superior first molar for fifty-two years

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Characteristics of the Chinese—It seems that the Chinese typically has a higher threshold of stimulation than the occidental It takes a larger summation of stimuli or a greater single stimulus in the first place to rise into consciousness, and in the second place to cause reflex activity So we see him impervious to noises, odors and sights which western nerves bear but poorly We see him existing with no complaint and no idea of betterment, in squalor, misery and poverty which western personality would find at once unendurable. We see him exercise a fatalistic indifference to the immediate or remote future, because no clear picture has arisen in his consciousness of any condition or time different from his own immediate present When the summation or single stimulus is sufficiently great, however, for sensation to appear in consciousness there is but a norrow margin of normal response before the reaction becomes pathological Hence it is that all the psychoses and neuroses are so easily aroused, since the zone of normal response is narrowed by the high threshold of stimulation Thus we see the superficial anomaly of sluggishness, inertia and indifference associated with a high and poorly controlled emotional nature which involves and easily goes over into hysteria and various emotional crises—Dr Alfred C Reed, *Scientific Monthly*, January, 1917

AN ANALYSIS OF FIFTY CASES OF SCIATICA *

MARK H ROGERS, MD
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The purpose of analyzing a series of cases of sciatica and presenting it before this section is to discuss whether there is such a condition or clinical entity that is called essential or idiopathic sciatica Also I wish to discuss in relation to teaching, what should be taught, and in what department of the medical school should it be made the subject of teaching There is no question but that it is firmly fixed in the layman's mind that sciatica is a disease in itself, a distinct entity, and I am sure that the profession at large also is satisfied that it is an entity, although realizing that at times it may be a symptom of a lesion elsewhere If we appreciate that there is a definite cause in every case and that cause can be demonstrated as a physical fact, then much of the uncertainty will be changed and the treatment will become more rational and exact

What is the necessity for discussing this subject? That it is an indefinite and undecided condition is very well shown by any textbook on internal medicine or nervous diseases Either what the orthopedist believes to be true, and I suppose my experience as brought out in these fifty cases will correspond with yours, is entirely wrong, or else the various authorities on which we have to depend are giving a wrong conception of this condition

Let me quote from one of the authorities as to treatment

> Certain remedies are of service in sciatica Prolonged baths give excellent results The patient must remain in his bath for several hours Antipyrin may be prescribed in doses of from 15 to 45 grains Injections of morphin and inunction of an ointment of methyl salicylate may give relief Blister, the actual cautery, injections of sterilized water, injections of air, and epidural injections by the sacrococcygeal route have their indications Bleeding leeches and cuppings are useful

I am familiar with the teaching of two medical schools and as far as I know sciatica is not definitely taught as a part of the curriculum in either one I received no instruction as a student and supposed that it was a pure nerve lesion I rather believe that it is not considered of very great importance, and therefore falls between the departments of medicine, neurology and orthopedics Therefore we had to gather our knowledge from the textbooks and current literature, and enough has been said to show the confusion that exists, and this is the reason for presenting these facts

It may be argued that this is a rather selected group of cases, because I would be more likely to see cases with joint symptoms There is a certain element of truth to such a statement, but many of these cases had been definitely treated for sciatica by other men, with the idea that there was an inflammatory lesion of the nerve trunk I am sure that this series of cases represents what is commonly called sciatica Fifteen years ago there were reported from the nerve department of the Massachusetts General Hospital of Boston a large number of cases of sciatica, as shown in the annual report The other day I went over the records of this same department for the last six months and found three cases that were diagnosed sciatica One of the staff of that department analyzed these three records, and he could find no evidence of an essential sciatica In other words, they have no record of such a condition in the last six months

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I was interested in discussing this question of essential sciatica with one of the older orthopedic men, and he said that most sciaticas were certainly due to joint lesion, but he supposed there must be real sciaticas But the point is that he never has seen one Several medical men of good standing have informed me that they have never recognized a case of so-called idiopathic sciatica Now, where certain groups of men recognize sciatica as a distinct disease, a perineuritis of the sciatic nerve, and that is the commonly accepted pathology, and another group are not sure that there is such a condition, it means either that our older teaching and the larger part of what the textbooks teach are wrong or that I have not seen the type of cases that they describe I believe such a fact as here presented in regard to the records of the nerve department of the Massachusetts General Hospital show that we are all dealing with the same type of case, but from a different point of view

As the analysis of this series will show that the lesion is located at the origin of the sciatic nerve, and not along the course of the nerve as is commonly taught, and as it is the contention that the most common cause is a joint lesion with a secondary effect on the nerve which is anatomically in close apposition to the joints which make up the lower part of the spine, it will be necessary first to consider the various points in the physical examination of any case of sciatica which indicate a joint lesion

To study the physical examination of such a well-known condition as sciatica would seem to be unnecessary, but certain features seem to me to be overemphasized and are always explained on the basis of a nerve lesion It is quite easy to demonstrate that an acute attack of sciatica has a definite joint basis, but it is more difficult to explain the cases that show a milder degree of pain and that are more chronic in character, because the symptoms referable to a joint are less marked than the resulting nerve pain

The evidences of a lesion of any joint, whether due to disease or to trauma, is definite and clear cut They are pain referred to a joint, tenderness to touch, limitation of motion, deformity resulting from muscular spasm or from a permanent lesion, and changes in the joint as shown by the Roentgen-ray

It is very common in sciatica to have the pain referred to the lower portion of the spine, starting from that region and extending down the course of the nerve Often the patient will put one finger directly over the sacro-iliac joint or the lumbosacral joint and locate the pain definitely at the joint

In the acute cases, those that are due to an acute joint trouble, there may be definite tenderness to touch over one of the articulations, and sometimes this may cause pain down the sciatic nerve Of course, it is impossible to cause direct pressure on the nerve by pressing on the posterior surface of the joint, so the effect must be through a sensitive joint and thus to the nerve which lies anterior to the joint

Limitation of motion of a joint does not need any explanation as an indication of a joint lesion, except to explain how it is detected in lesions about the lower portion of the spine It may be observed while the patient is standing, and then it will be noticed that forward, lateral or backward bending will either be definitely restricted or will cause pain A more delicate test is to have the patient, while lying on the back and with the knee held straight, flex the leg on the abdomen This is the Kernig test and has always been explained as causing pain because it stretched the sciatic nerve It seems to me that the true explanation is that there is a direct leverage applied to the sacro-iliac joint, because with the leg held straight, the ham-string muscles running from the ischium to the head of the tibia pull directly on the joint I have never been able to convince myself that anatomically the nerve is stretched by this procedure, and I believe it to be a fallacy handed down from one book to another In the severe cases it often is not possible to raise the leg in this position 6 inches from the table and this cannot actually stretch the nerve, while it will pull on a sensitive joint With the patient lying face downward, hyperextension of the thigh, which pulls on the sacro-iliac joint in the opposite direction, will often cause sciatic pain, and this certainly cannot pull on the nerve

These two tests, this so-called straight leg raising and the hyperextension of the thighs, are the two most delicate tests that affect the motions of the sacro-iliac joint It has long been recognized that in cases of sciatica Kernig's test is very apt to be positive, but the interpretation has always been referred to the effect on the nerve and very little mention has been made of its action in causing motion of any joint

One of the chief symptoms of a lesion about a joint is deformity which arises whenever the lesion is of any intensity In the knee-joint the deformity is flexion and in the hip-joint it is flexion and adduction, as a rule So that when we see deformity we naturally look for a joint lesion In sciatica it is very common to notice a change from the normal position of the lower portion of the spine This listing or deviation from the normal position is due to either muscular spasm or joint spasm, in the acute cases, or to permanent changes in the joint, in the more chronic cases It is simply what happens in the course of any joint trouble and is commonly seen in the more severe or acute cases If the listing persists we have what is commonly called sciatic scoliosis, that is, simply a deviation or a deformity of the spine due to some joint lesion

Much has been written, especially in the German language, about sciatic scoliosis, but it seems to me that it is simply a symptom and not a distinct condition by itself For the purposes of this paper I shall not go farther into this symptom, but simply draw attention to the fact that it is indicative of joint lesion

The Roentgen-ray should be used in the examination of many cases of sciatica, the same as would be done in any joint case, to show whether there is any bone lesion that is the cause of the symptoms Tuberculosis of the fifth lumbar vertebra is often treated for sciatica for months, because we are content to consider the latter as a disease Hypertrophic arthritis, or ostearthritis of the spine, often has sciatic pain as its chief symptom Also a careful Roentgen-ray study may show why the joints of the lower spine are subject to chronic strains, because we find that the fifth lumbar vertebra is very apt to show certain changes from the normal, such as extra long transverse processes

It is not the purpose of this paper to deal with any minute point in the etiology, or to go into detail in regard to any case, but I shall try to show in the analysis of these cases that a joint in the physical examination shows a lesion and the treatment is based on this fact Also I shall not discuss whether in any individual case there may be a dislocation or subluxation of the sacro-iliac joint, which has lately been under discussion, but shall call those cases in which this diagnosis might be possible acute joint strain, a term which is broad enough to cover the subject Nor shall I try to differentiate whether the lesion may be of the sacro-iliac joint or of the lower lumbar joints, because a disturbance of any of these may cause sciatic pain

Of this series of fifty cases of so-called sciatica, forty-nine showed a definite evidence of a lesion of one of the joints of the lower spine, which include the lumbar articulations, the lumbosacral joint and the sacro-iliac joints Also there is definite evidence that the lesion of the spine has a direct connection with the pain in the sciatic nerve, as is shown by an increase in the pain when there is an attempt at motion of the joint involved One case out of fifty showed no evidence of a spinal lesion, but presented the characteristic evidence of carcinoma of the prostate This case is included and helps to emphasize the point that there is always a definite cause at the origin of the nerve and not a perineuritis along the course of the nerve

There are seventeen cases out of fifty which I have classified as acute strain of the lower spine Most of these represent an acute lesion of one of the sacro-iliac joints, the sciatic symptoms sometimes coming on acutely secondarily to a chronic or recurrent strain of this joint Two of these patients were first examined after having had severe sciatic pain for over a month, when they presented a sacro-iliac joint so sensitive that the slightest pressure caused intense sciatic as well as joint pain And yet the patients told me that this was the first time that any one had ever examined the back This is so because we have been taught to accept the term sciatica as a clinical entity, and that there was no need of examining further

There were twenty-one cases out of fifty that are classified as chronic strain of the lower portion of the spine It is more difficult in this group to connect the sciatic pain with the spinal condition, because the history is often misleading and sometimes shows no direct connection But in every one of these cases there was definite evidence of a joint lesion, as shown by loss of motion and pain on motion, and it was possible to demonstrate an increase of sciatic pain when the affected joint was moved It is in this group that we see the so-called sciatic scoliosis, which is perfect evidence of a joint lesion It is not rational to explain the scoliosis as secondary to the sciatica when they are both symptoms of a joint lesion

The third group is classified as hypertrophic arthritis, the diagnosis being based on the fact that the Roentgen-ray shows definite overgrowth of bone in the region of the lower lumbar spine, which corresponds to the facts as shown on physical examination In this group there were eight cases out of fifty It is not necessary to discuss this group, because all the textbooks recognize that definite spinal lesions may cause sciatic pain

The last group, four out of fifty cases, were proved cases of tuberculosis of the lower spine in adults It is of interest to note that two of these four patients were treated for a year for idiopathic sciatica, and the diagnosis was mistaken because some one was satisfied with the accepted theories It would have been easy to detect a joint lesion as soon as the sciatic pain commenced in these cases, even if it were not possible to diagnose the character of the bone lesion, because there must have been evidences of joint trouble previous to the involvement of the nerve

It is not the presumption that the only cause of sciatic pain is a joint lesion, but on the basis of these cases it is evident that the joint lesion is very frequently overlooked and its importance not recognized Of course, it is perfectly irrational to treat the resulting pain, which is advocated in numerous textbooks and current literature, when the trouble lies in the spine Nobody would think of treating the sciatic pain after he recognizes a tuberculosis of the spine, and therefore the sciatica should not be treated as such when there is definite evidence of a joint strain, which can certainly cause sciatic pain

The conclusions from this study are two

First, there is no clinical entity which is commonly called idiopathic sciatica The evidence is very strong that the accepted theory of a perineuritis due to some inflammatory condition of the nerve sheath is not proved, and that there is always a definite cause at the origin of the nerve The most common cause of sciatic pain is a definite joint lesion

Second, if we have to use the term sciatica, and we undoubtedly will, then it should be a part of the orthopedic teaching One of the chief reasons why there is so much confusion is because it is not well taught, and our knowledge is gathered chiefly from textbooks It should be in the orthopedic textbooks

483 Beacon Street

ABSTRACT OF DISCUSSION

Dr Leonard W Ely, San Francisco I teach my students that there is no such disease entity as sciatica Sciatica means pain in the sciatic nerve, a symptom, not a disease Then they go to other departments, and find that it is treated as a clinical entity, by means of electricity, massage and drugs In almost every case, however, a cause for the pain can be found When we cannot find a cause, we acknowledge our ignorance, and do not attempt to hide it by calling a symptom a disease It is high time that sciatica and intercostal neuralgia followed belly-ache' and 'acute bilious attacks" as diagnoses into the scrap heap

Dr Melvin S Henderson, Rochester, Minn I heartily agree with what Dr Rogers said, and partly with what Dr Ely said I believe, however, that there is a definite group of cases in which you cannot find any cause for so-called sciatica What are you going to do with these cases? I try to locate the cause, but sometimes cannot do it, and should like to know whether any one else can do so always Occasionally I have found that the injection of saline solution cured a small percentage I try it in that particular group just mentioned, after I have tried out all other methods The occasional cure secured seems to me to justify the procedure, as it is devoid of danger if carried out according to the method of Patrick

Dr Joel E Goldthwait, Boston It might be a matter of interest from the point of view of history to know that at the Massachusetts General Hospital, a number of years ago, these patients were sent to the orthopedic department, not at the request of the orthopedic surgeon but of the neurologist who said that eight out of ten of these patients belonged to the orthopedic department, and it was not worth while for them to be sent to the neurologic department first, only to be referred elsewhere He thought it better for the orthopedic department to have to send two patients to the neurologic department than for the neurologic department to have to refer eight to the orthopedic That was the attitude of the neurologist years ago These requests came from the neurologists themselves, and I am under the impression that a smaller proportion of the total number of these patients would now be claimed by the neurologists than at that time

Dr Roland Meisenbach, Buffalo I must agree with Dr Rogers I was very glad to hear him speak of sciatica as a symptom I am willing to acknowledge that there is such a condition as sciatica, but I wish to emphasize that it is rare, that when we have sciatica in any way present, it is usually present as a symptom, due to some other cause than sciatic nerve inflammation One of the best illustrations of this is the sciatica in cases of hypertrophic arthritis, in which the lumen through which the sacral nerves pass gradually became smaller due to the hypertrophic pressure Loose pelvic joints are frequently the cause Sacro-lumbar, or even lumbro-lumbar joints may have a direct bearing on the symptoms of sciatica We must not forget our anatomy and the relation of the lumbar plexus to the sciatic nerve and to the spine I do not believe that the injection of saline into the sciatic nerve would permanently relieve cases in which the sciatica may be the chief symptom, but in which there are other conditions, as a loose sacro-iliac or a disturbed sacro-lumbar joint present However, the injection of novocain may temporarily relieve the patient, but the symptoms will recur Whenever we see a case of sciatica, it is our duty to search for the cause, and not treat the symptom

Dr John Ridlon, Chicago I have had the pleasure of having to be a month in bed for this kind of pain at least ten times I have not had Pott's disease, or osteoarthritis of the lumbar spine, or a slipped sacro-iliac joint, so the pain was not due to any of these I think that this shifting of the name of sciatica to a strained sacro-iliac joint is not by any means clearing up the question of painful backs

Dr John Prentiss Lord, Omaha I agree with the majority here that mechanical causes are back of a large proportion of these cases, but I have found that we must consider the patients as individuals the same as we consider those who have pains elsewhere Some of these pains are toxic The mechanical condition is not the only one present The patients are frequently anemic Some do not eliminate properly In one notable case in Omaha, the patient had tried all methods of cure, liquid paraffin relieved his intestinal stasis, and as soon as elimination was properly established, his pain disappeared I think that we must not forget that we are not merely manipulators, but are still doctors We must recognize the fact that some patients need treatment besides the particular treatment that comes under our specialty I believe that in some cases in which the pain is inexplicable and you cannot find a cause for it, if you treat the patient in a sensible way recovery may be expected

Dr Frederick C Test, Chicago I differ with Dr Rogers only in regard to the percentages of the causes that he stated for this pain In my experience, which comprises approximately fifty cases of distinct pain referred to the lumbosacral region, I have not been satisfied that I have had many loose sacral joints I found that I had to look for the cause higher up, and have almost always discovered an elongated transverse process of the fifth lumbar vertebra Sometimes this is present on only one side, but very frequently on both, perhaps associated with tilting of the lower spine and generally with stiffness, with pain usually shooting down one sciatic nerve or the other In such cases, I occasionally find that there will be relief obtained by manipulation, either intentional or, as in two or three cases, the result of some movement on the part of the patient that seemed to free the transverse process and so relieve the pressure—temporarily, at any rate, and sometimes permanently—on the nerve roots I remember a case in which there was pain in the lower back and extending down the right leg, and in which the roentgenogram showed a decidedly elongated transverse process on each side of the fifth lumbar vertebra Operation was declined for the time being, and afterward, while lifting a pail of water from the floor, the patient felt a twist on the right side of the back, and the pain immediately left the right sciatic nerve, and temporarily went to the left It has since gone from the left sciatic nerve, and she is now free from pain Regarding the other causes that cannot be traced to a bony lesion, I personally feel that there is something, at any rate, in the matter of a toxemic neuritis from a focus of infection somewhere in the body I remember one case in which I was particularly interested in which pain in the sciatic nerve came on three days after a nose operation After the nose condition cleared up, the sciatica gradually disappeared, but has a tendency to return whenever there is a coryza

Dr J D Griffith, Kansas City, Mo I am treating now two patients in whom there is a marked sciatica recurring every now and then I think that there are other causes for sciatica, in addition to the one that Dr Rogers pointed out, in a number of cases My cases belong distinctly to the type of enteroptosis There was an enormously dilated and enlarged sigmoid, and the paresthesia, etc, followed whenever it was *loaded* I have *found* relief by instituting hyperextension, prone hanging and the corset

Dr Frank E Peckham, Providence, R I I think Dr Rogers' idea was to trace the sciatica to the sacro iliac joint Of course the joint is affected by trouble in still other regions, and you may get a toxic case, as described by Dr Lord, with a real subluxation, as Dr Ryerson probably has just described I had two such cases, one was reduced under ether, presumably a subluxation, and the patient was well afterward and remained so The other case was one of pain in the groin, which I have seen in quite a few cases One manipulation without ether practically cured him, but these are unusual cases As Dr Lord says, we must study the patient Although he has local symptoms, his trouble may be quite general Another patient after many trials was cured by arch supports There was a static strain, which is a condition we must consider There are times when the ligaments require toning up and stimulating, which I do by various physicotherapeutic measures I know of one case in a doctor who had recurrent attacks By doing gymnastics morning and night, and hyperextending himself in bed, he has been clear of an attack for some time. I think that Dr Rogers is correct in tracing the pain to the sacro-iliac joint, but this joint itself is affected by various infections, and we should look for, and treat these

Dr James T Watkins, San Francisco Dr Lord said that occasionally sciatica is of toxic origin In confirmation of this contention, I should like to report a case I saw The gentleman, an athletic person, had had recurrent attacks of sciatica for a long time For four years he had been going the rounds of the physicians In his youth he had had gonorrhea and was now obsessed with the idea that this was the cause of his trouble, despite the fact that the best genito-urinary men had found nothing wrong I pointed out to him that nothing could be gained by duplicating the work which had been done by the exceedingly competent men who had preceded me in his case We therefore undertook a new departure and had his mouth roentgenographed My dentist friends advise me that there is no such thing as a healthy adult mouth This man had pyorrhea and alveolar abscesses I sent him to Dr T Sidney Smith Dr Smith advised certain work and that one tooth be extracted This displeased the patient, so he consulted a dentist who had been recommended to him at his club This man failed to relieve him He ultimately returned to me and I sent him back to Dr Smith Then he had the tooth extracted Prior to this he had attacks of sciatica every two or three weeks Since removing the tooth and having his mouth treated efficiently an interval of some months has elapsed during which he has had no sciatica at all

Dr Albert H Freiberg, Cincinnati We must remember that a man has two sciatic nerves, and also many other nerves Therefore, there is to be explained why a man happens to have a pain in one sciatic nerve However much there may be a constitutional cause, either in the shape of infection or some constitutional disease, such as diabetes, it is only reasonable to suppose that there is a localizing factor to be found, if we only know where to look for it Since we have been able, by modern methods and investigations, to study better the conditions of the spine, and the pelvic joints, and since we know the relationships of sacrolumbar cord and sacrolumbar plexuses, we have eliminated a large percentage of the unexplained cases We are called on in every case to tell why the individual has the pain in his right or left sacro-iliac region or his right or left sciatic nerve I do not mean to say that I am always able to tell, any more than any one else I can give the case a careful analysis by means of the Roentgen ray and other diagnostic helps, but I think that even in those cases in which we are unable to find the localizing factor, we must, nevertheless, assume that there is one that we should probably find with increase of knowledge We must strive to explain, in every case that comes to us, why the individual has a pain in the sciatic nerve, and not somewhere else

Dr Reginald H Sayre, New York We have been over almost all parts of the body, looking for the cause of pain in the sciatic nerve, but no one has mentioned the necessity of looking for fissures in the rectum, for carcinomas, for retroverted uteri, for prolapsed ovaries and dilated colons Anything resting on the sciatic nerve and hurting it or the sacral plexus may cause this pain

Dr Arthur Lawrence Fisher, San Francisco I should like to emphasize a point in regard to the mechanism of the pain We are taught that it is due to pressure Unquestionably, in some cases, it is due to pressure on the nerve, but in others, there is a reflex from the joint, just as the pain in hip-joint disease is referred to the knee The nerve which enervates the joint comes from the same segments of the cord as the nerve along which the pain is referred, which in this instance is in the sciatic nerve

Dr Mark Homer Rogers, Boston The chief point to which I wish to call attention is that the lesion is somewhere near the origin of the nerve, and not along the course of the nerve, as is commonly taught I did not intend to lay stress on the importance of any one joint, namely the sacro-iliac It is not any one joint but any part of the lower spine from which the nerve arises that is the primary cause If you will examine the spine you will find a spinal lesion in a majority of cases The strongest point that I have made is the fact that the neurologic department of the Massachusetts General Hospital has no record of a true case of sciatica in the last six months, whereas formerly they had many hundreds

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Disease Not a Respecter of States' Rights—The greatest asset which our country can have is the healthy American citizen, and, valuable as it may be to increase the health of live-stock and vegetation, it is of far greater importance that we throw every possible safeguard about the health of the man who is responsible for that live stock and vegetation The argument has been advanced that since the States at the time of their entry into the Union reserved to themselves their police powers and since the administration of health is one of the police powers, that the states should themselves grapple with their own health problems and conquer them, and that it is therefore improper for the federal government to make appropriations the application of which will react to the health of states This argument is fallacious in the extreme As I have previously pointed out, this problem is not a purely intrastate problem Milk which is produced under insanitary conditions in New Jersey may produce an epidemic in New York Butter or cheese which is made under insanitary conditions or from polluted milk in Wisconsin or Illinois may produce disease in Virginia or the District of Columbia Lettuce or watercress which is grown in soil which is polluted with human excrement may be shipped in refrigerator cars to a distant point and there produce an epidemic of typhoid fever The man who contracts typhoid fever on a farm in Texas may become a chronic typhoid bacillus carrier and distribute the disease wherever he goes no matter what the state or what the city Disease has absolutely no regard for state lines whatsoever Disease is equally uninterested in states' rights Sewage poured into a river in one state is easily carried by that stream to another state So I say to you that the problem of rural sanitation is not a local problem but one which concerns the health and the physical integrity of our entire nation—Senator Joseph E Ransdell, of Louisiana, in the U S Senate, July 14, 1916

A REPORT ON THE TREATMENT OF PERNICIOUS ANEMIA BY TRANSFUSION AND SPLENECTOMY *

H Z GIFFIN, M D
ROCHESTER, MINN

It* is difficult to appreciate the fact that pernicious anemia is at present an incurable and fatal disease which in some respects is more to be dreaded than cancer Its relapses, remissions, and merciless progressive course impress on us the necessity for a universal study of its manifestations A thorough trial of splenectomy in the treatment of pernicious anemia is therefore warranted, though a consideration of the results is at present necessarily confused by fallacies and insufficient data There is so far no evidence that splenectomy has cured pernicious anemia, but there are definite indications of consistent temporary improvement in a majority of instances

Our early experience with splenectomy for pernicious anemia was discouraging During the past two years, however, it has become evident that a marked reaction and a consistent temporary gain, at least for a period of months, follows splenectomy in selected cases, and surgical treatment has been more frequently suggested after a frank explanation to the patients concerning the course of the disease, the inadequacy of present methods of treatment, and the experimental nature of the procedure

In February, 1910, the spleen was removed from a patient (A7040) who suffered from severe attacks of epistaxis and had a very large spleen, an icteroid tinge, and a blood picture of pernicious anemia including the presence of megaloblasts Splenectomy was advised not with the specific idea of applying that treatment to pernicious anemia but largely because of the great size of the spleen and the somewhat indefinite characteristics of the blood picture The patient did not report himself as improved, and died three years after operation with pneumonia

Experience may show that cases of this type, in which there is a very large spleen, a hemolytic type of anemia, and a blood picture of pernicious anemia would better be grouped separately, as suggested by Moffitt,[1] but they cannot at present be omitted from consideration in a study of this character

The remaining patients of this series were operated on between Aug 1, 1914, and April 1, 1916 The records extended up to June 1, 1916, from twenty-three months to three months following operation, most of them, however, were for periods of less than one year

Preoperative Transfusion—Preoperative transfusion has been done in nineteen cases, from one to four transfusions having been given in each instance A marked gain followed transfusion in eight cases Very rapid and decided gains were seen in two patients In one the hemoglobin rose from 10 to 40 per cent, with a gain of 2,000,000 red cells in one month, in the other the hemoglobin rose from 16 to 59 per cent, with a gain of 1,500,000 red cells in one month Each of these patients received two transfusions In six there were gains of only a few points, and in four there was no definite improvement In one the hemoglobin per-to refer eight to the orthopedic That was the attitude of the neurologist years ago These requests came from the neurologists themselves, and I am under the impression that a smaller proportion of the total number of these patients would now be claimed by the neurologists than at that time

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* From the Mayo Clinic

* Presented before the Association of American Physicians, May 10 1916, Washington D C

[1] Moffitt H C Studies in Pernicious Anemia Am Jour Med Sc 1914, 148, 817

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ROCHESTER, MINN

It is difficult to appreciate the fact that pernicious anemia is at present an incurable and fatal disease which in some respects is more to be dreaded than cancer Its relapses, remissions, and merciless progressive course impress on us the necessity for a universal study of its manifestations A thorough trial of splenectomy in the treatment of pernicious anemia is therefore warranted, though a consideration of the results is at present necessarily confused by fallacies and insufficient data There is so far no evidence that splenectomy has cured pernicious anemia, but there are definite indications of consistent temporary improvement in a majority of instances

Our early experience with splenectomy for pernicious anemia was discouraging During the past two years, however, it has become evident that a marked reaction and a consistent temporary gain, at least for a period of months, follows splenectomy in selected cases, and surgical treatment has been more frequently suggested after a frank explanation to the patients concerning the course of the disease, the inadequacy of present methods of treatment, and the experimental nature of the procedure

In February, 1910, the spleen was removed from a patient (A7040) who suffered from severe attacks of epistaxis and had a very large spleen, an icteroid tinge, and a blood picture of pernicious anemia including the presence of megaloblasts Splenectomy was advised not with the specific idea of applying that treatment to pernicious anemia but largely because of the great size of the spleen and the somewhat indefinite characteristics of the blood picture The patient did not report himself as improved, and died three years after operation with pneumonia

Experience may show that cases of this type, in which there is a very large spleen, a hemolytic type of anemia, and a blood picture of pernicious anemia would better be grouped separately, as suggested by Moffitt,[1] but they cannot at present be omitted from consideration in a study of this character

The remaining patients of this series were operated on between Aug 1, 1914, and April 1, 1916 The records extended up to June 1, 1916, from twenty-three months to three months following operation, most of them, however, were for periods of less than one year

Preoperative Transfusion—Preoperative transfusion has been done in nineteen cases, from one to four transfusions having been given in each instance A marked gain followed transfusion in eight cases Very rapid and decided gains were seen in two patients In one the hemoglobin rose from 10 to 40 per cent, with a gain of 2,000,000 red cells in one month, in the other the hemoglobin rose from 16 to 59 per cent, with a gain of 1,500,000 red cells in one month Each of these patients received two transfusions In six there were gains of only a few points, and in four there was no definite improvement In one the hemoglobin percentage and erythrocyte count fell, but later, after *splenectomy, improvement occurred.*

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* From the Mayo Clinic

* Presented before the Association of American Physicians, May 10 1916 Washington D C

[1] Moffitt H C Studies in Pernicious Anemia Am Jour Med Sc 1914, 148, 817

In general, preoperative transfusions have proved valuable in improving the general condition of the patient and in favorably affecting the blood picture. The hemoglobin percentage and the red cell count have been moderately raised and the characteristics of the blood count favorably affected. Our knowledge of the hemopoietic system indicates that a consistently low leukocyte count with relative and absolute reduction in polymorphonuclear cells is to be interpreted as the result of severe injury to the bone marrow. Transfusion is usually followed by a gradual slight rise in the leukocyte count and an increase in the absolute number of polymorphonuclear cells. This reaction is not, however, to be compared in degree with that following splenectomy, which, on the other hand, must be considered in the light of postoperative leukocytosis in general.

TABLE 1.—SPLENECTOMY FOR PERNICIOUS ANEMIA

	Cases
Total (April 1, 1916)	31
Operative deaths (9.7%)	3
Recovered from operation	28
Marked and continuous gain after splenectomy during the first 3 mo. period	22
Number of cases recorded during second 3 mo. period	16
Number of cases maintaining gain during second 3 mo. period	11
Relapse	8
Postoperative deaths	5

Splenectomy.—That definite benefit for a period of months follows splenectomy in a high percentage of cases seems to be clearly indicated by a study of this series. Of twenty-eight patients recovering from operation, there was a gain during the first period of three months in twenty-two (78 per cent.). During the second period of three months, eleven (68 per cent.) of sixteen patients then living maintained their gain. This gain represents a satisfactory, and in several instances, a remarkable, improvement in the blood picture and the general condition. It has, however, little relationship to spinal cord symptoms or signs. Two living patients have maintained a satisfactory condition for one year, three for nine months and three for six months (Tables 1 and 2).

In the course of pernicious anemia, splenectomy seems to cause a more profound immediate reaction than any other form of treatment. This is demonstrated by our observations chiefly in three ways: (1) by an improvement in the blood picture and a change in its characteristics, (2) by a gain in the general condition, and (3) by a fall in the values of the blood-derived pigments in the duodenal contents.

1. *The Blood Picture.*—The very prompt occurrence of leukocytosis with a corresponding increase in the relative and absolute polymorphonuclear neutrophil count, together with showers of normoblasts, is indicative of a very marked reaction after splenectomy. The average leukocyte count in these cases within a few days of operation was 11,531. A very high polymorphonuclear count was almost constant. This leukocytosis persisted at least for a period of months. One month after operation it averaged 11,473. In cases of which we have record, from three to six months following splenectomy it averaged 10,283. The leukocytosis following splenectomy for pernicious anemia differs *from the leukocytosis following operations in general* both in degree and in persistence. The polymorphonuclear cells, it is agreed, have their origin in the bone marrow, and their increase may be either the result of bone marrow stimulation or of decreased blood destruction. No similar reaction is seen following transfusion.

Large numbers of normoblasts were found in the blood smears in twenty-five cases. The average was fifty-six in a count of 300 leukocytes. This is exclusive of one case in which 536 were recorded.

The gain in hemoglobin was gradual in most cases. The average gain in twenty patients, who showed satisfactory improvement, was from 38 per cent. just preceding splenectomy to 72 per cent. at periods varying from one month to six months following operation. In three patients it reached 90 per cent. or more.

The increase in the erythrocyte count ran parallel to the rise in hemoglobin. The average erythrocyte count in the twenty-two cases showing a gain was 2,000,000 just preceding splenectomy and 3,490,000 at periods varying from one month to six months after operation. In one patient it reached 5,200,000 cells, in seven it rose to over 4,000,000. This improvement was independent of preoperative transfusion, as is evidenced by the fact that nine patients in whom preoperative transfusion was not given showed an average gain of from 1,900,000 to 3,700,000. *On the other hand, the greatest average gain* was seen in thirteen patients as a result of combined preoperative transfusion and splenectomy—an average gain from 1,200,000 to 3,500,000. Postoperative transfusion has been given only in relapses, and not as a routine procedure.

It seems to be clear, therefore, that the blood picture is more decidedly and consistently influenced by splenectomy than by any other method of treatment. It has not yet been shown that this improvement is

TABLE 2.—SPLENECTOMY FOR PERNICIOUS ANEMIA. CONDITION OF PATIENTS IN THREE MONTH PERIODS AFTER OPERATION WITH RESPECT TO BLOOD AND GENERAL CONDITION*

Case and No.	Date of Operation	Operative Death	Months				
			3	6	9	12	1
1 7010 F. P. F.	2/10/10		—	?			D†
2 112160 D. M.	8/11/14		+	+	—D		
3 98744 M. S.	12/ 2/14		—D				
4 122468 J. B. M.	1/23/15		—D				
5 124957 M. S.	8/10/15		+	+	—R	+	—R
6 127047 C. H.	4/17/15	D					
7 129678 O. D. B.	6/ 4/15		+	+	+	+	
8 128387 J. H. D.	6/ 5/15		+	+	+	+	
9 131876 I. S.	6/21/15		+	+	—R	D	
10 131901 R. O.	7/ 3/15	D					
11 136882 M. J. F.	8/ –/15		+	+	+		
12 134484 W. G.	8/31/15		+	—R	+		
13 139695 F. L.	9/ 8/15		+	—R	+		
14 140015 G. I.	9/20/15		+	+	+		
15 142919 F. O.	10/ 1/15		+	+	+		
16 141771 H. F.	10/12/15		+	+			
17 142587 H. W. I.	10/15/15		—	—			
18 140970 W. A. S.	10/10/15		+	+			
19 133078 C. A.	10/2 /15	D					
20 134932 J. M.	10/ 6/15		—	—			
21 147603 F. F.	12/31/15		+	+			
22 150007 W. I. B.	2/ 2/16		+				
23 151088 M. R.	2/11/16		+				
24 150279 F. S.	2/23/16		+				
25 151665 F. W. N.	2/21/16		+				
26 152922 W. H.	3/10/16		+				
27 152671 H. I.	3/15/16		+				
28 130612 C. G. I.	3/17/16		—				
29 151493 D. D. H.	2/25/16		+				
30 153505 L. O. H.	3/29/16		+				
31 151046 B. N.	3/29/16		+				

* In this table + indicates gain, — loss, R relapse and D death.
† Death 3 years.

more than temporary. A polymorphonuclear increase which persists for months, great numbers of normoblasts, and a gradual rise in the hemoglobin and the red cell count are most prominent.

2. *The General Condition.*—An improvement in appetite and in general strength has been noted during the early weeks following splenectomy. This has been recorded even before any decided improvement in the blood has taken place. The patients seemed to be less toxic. All but two promptly lost their icteroid tinge. Elimination or partial elimination of some product of altered metabolism or hemolysis would explain the change in the general condition. The psychic effect of surgical treatment has been minimized by a previous explanation of our incomplete knowledge concerning the results.

3. *The Fall in the Values of the Blood-Derived Pigments in the Duodenal Contents.*—The increase of urobilin in stools of patients suffering with hemolytic types of anemia and its marked decrease after splenectomy have been demonstrated by Eppinger[2] and his co-workers. The clinical importance of the estimation of urobilin in the excretions in various types of anemia is shown by the work of Wilbur and Addis.[3] The quantitative estimation of urobilin and urobilinogen spectroscopically in Wilbur and Addis units has been successfully applied to the duodenal contents by Schneider.[4] We have estimated the values of the blood-derived pigments in the duodenal contents of thirty-four patients, and our findings in general corroborate those of Schneider. The only results I report at this time were obtained in nine cases of this series. The very striking fall in the values of the blood-derived pigments after splenectomy would seem to indicate a favorable effect with respect to the hemolytic factor. The values frequently run parallel to the degree of icterus (Table 3). In one case the total estimation of urobilin and urobilinogen fell from 6,000 units before operation to 800, twenty-one days afterward, in another from 5,000 units to 200 units. That this marked reduction in bilirubin, urobilin and urobilinogen in the duodenal contents will prove constant is likely, that it will obtain at a later period, after splenectomy, we have yet no indication.

Can we formulate what might be termed a balance between the hemolytic and myelotoxic factors in a given case? Between blood destruction and blood production? The values for the blood-derived pigments, it would seem, should in some measure be an index of hemolysis; on the other hand, the characteristics of the blood picture, if we can properly interpret them, are doubtless expressive of the condition of the bone marrow. Decided fluctuations in the leukocyte count and in the characteristics of the differential count are seen in many cases of this series, both before and after transfusion, and before and after splenectomy. There is considerable evidence to indicate, however, that a consistently low leukocyte count with a reduction of the polymorphonuclear neutrophils is indicative of severe bone marrow insufficiency. Certainly a constant complete inversion of polymorphonuclear and lymphocyte percentages, that is, a very low polymorphonuclear percentage with a high lymphocyte percentage is an unfavorable indication, though it does not mean that a subsequent remission may not occur. If a patient with high hemolytic values is able, in spite of active hemolysis, to maintain a blood picture with favorable characteristics and only moderate anemia, there should be present an active bone marrow, and the case would appear to be a more favorable one for splenectomy. Irrespective of high or low hemolytic values, if the leukocyte count is consistently low with an inversion of the differential count, and the anemia extreme, showing no reaction after transfusion or medicinal treatment, the case would seem to be an unfavorable one because of probable advanced pathologic change in the bone marrow.

Age.—The largest number of patients (twelve) were between 40 and 50 years of age. One was in the second decade, three in the third, five in the fourth, eight in the sixth, and two in the seventh.

The progress of the patient in its relationship to age cannot at present be ascertained from a study of these cases. In general, the older patients presented less evidence of active hemolysis and more evidence of marrow damage. The patients of middle age were of both the hemolytic and myelotoxic types, while in younger patients hemolysis was usually active. The severity of the disease varied with the individual case irrespective of age, save that the oldest patients were prone to a chronic form with less definite remissions. While the younger patients probably are capable of more benefit as a result of bone marrow stimulation and an amelioration of the hemolytic factor, many patients of the fourth and fifth decades have shown remarkable gains.

TABLE 3.—ESTIMATION OF HEMOGLOBIN-DERIVED PIGMENTS IN DUODENAL CONTENTS. WILBUR AND ADDIS UNITS (SCHNEIDER TEST)

Case and No	Time Before and After Splenectomy	Color	Bilirubin	Urobilin	Urobilinogen	Total
5 19[illegible]7 M S	12 months after		+	400	0	400
22 150807 W F B	37 days after	Yellow	++	700	0	700
24 150220 E S	30 days after	Yellow	+	1 700	0	1 700
25 151[illegible] T W N	34 days after	Yellow		600	0	600
26 152922 W H	7 days before		+++	2 000	600	2 600
	21 days after	Yellow	+	1 400	0	1,400
27 15[illegible]671 H L	20 days before	Dark brown		6,000	4 000	10 000
	14 days before	Dark brown		5 000	1 000	6 000
	21 days after			800	0	800
29 154493 D D H	9 days before	Dark brown	+	3 000	2 000	5 000
	17 days after	Yellow		200	0	200
30 153395 L O H	9 days before	Dark brown	+++	3 500	Trace	3,500
	24 days after	Yellow	Trace	200	?	200
28 136512 C G T	15 days before	Dark brown	+++	2,200	600	2,800

Weight of Spleen.—The average weight of the spleens removed in this series was 422 gm., exclusive of two very large spleens weighing, respectively, 1,120 and 1,600 gm. In only two cases did the spleen weigh less than 175 gm. The very small spleen is usually present in the late stages of pernicious anemia, and a moderately enlarged spleen is generally found when hemolytic activity is marked. Splenectomy influences chiefly the hemolytic factor of the disease, and one might argue that the presence of a moderately enlarged spleen is a point of evidence in favor of splenectomy.

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[2] Eppinger, H.: Zur Pathologie der Milzfunktion, Berl. klin. Wchnschr., 1913, 50, 1509, 1572, 2409. Eppinger, H., and Ranzi, E.: Ueber Splenektomie bei Bluterkrankungen, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1914, 27, 796.

[3] Wilbur, R. L., and Addis, T.: Urobilin, Its Clinical Significance, Arch. Int. Med., February, 1914, p. 235.

[4] Schneider, J. P.: Splenic Pathology of Pernicious Anemia and Allied Conditions. A Duodenal Method of Estimating Hemolysis, Arch. Int. Med., January, 1916, p. 32.

Operative Mortality—In this group of thirty-one cases there were three operative deaths, giving an operative mortality of 9 7 per cent[5] There is no apparent reason why the operative mortality of splenectomy for pernicious anemia should not be low when a proper operative selection has been made The spleen is relatively small, adhesions usually insignificant, and the technical procedures not difficult The risk of surgical treatment is decidedly increased in patients with severe anemia, and every endeavor should be made to improve the hemoglobin to 35 or 40 per cent, and the erythrocyte count to 1,500,000 or 2,000,000 cells

A consideration of the features presented by the three patients who died following operation reveals that one of them was distinctly not a case for surgical treatment The hemoglobin was 19 per cent, even after two transfusions, and a consistently low leukocyte count was present The other two operative deaths were similar in character, and presented unusually striking features The patients died, on the third and fourth days, respectively, after having suddenly developed fever as high as 106 F and delirium, in one case associated with hyperpnea and pulmonary edema, and in the other persistent vomiting with ultimate coma

Postmortem examination in both instances failed to show a sufficient cause for death These fatal attacks may have been the result of operation at a time of recrudescence or impending crisis, in one instance acidosis is a probability Neither of these patients was in a weakened condition before operation, but both of them for two weeks previous to operation showed a falling hemoglobin, a decrease in the red blood cell count, and a low and falling leukocyte count, all of which would at the present time be regarded as points in evidence against a recommendation for surgery

Postoperative Deaths — Five patients In two patients the downward course was not averted by splenectomy, and death occurred at home within three months In one of these patients there was a slight gain in the condition of the blood, but a double femoral thrombophlebitis developed, and the patient died with septic manifestations In the second patient there was no reaction either in the general condition or the blood, and a steady decline occurred The spleen in this instance was very much above the average size for pernicious anemia, weighing 1,120 gm A third patient died at nine months after decided improvement which was maintained for approximately six months A fourth patient died at twelve months after gaining to 90 per cent hemoglobin and 4,000,000 red cells and maintaining a good condition for seven months The fifth patient died three years after splenectomy, his postoperative course was never determined

Relapses—Three living patients have had relapses, two within six months following operation after an improvement during the first period of three months, and one at fourteen months after recovery from a previous relapse at nine months Two of these who were treated by transfusions at the time of relapse have again had remissions Three additional patients have never shown evidence of definite gain since splenectomy

SUMMARY

1 There is no evidence that splenectomy has cured pernicious anemia

2 A review of thirty-one cases of splenectomy for pernicious anemia demonstrates a definite gain in the blood, the weight, and the general condition during the first three months of the postoperative period in 78 per cent of the cases, during the second three months' period, 68 per cent of living patients maintained their gain

3 A consideration of the advisability of splenectomy would seem to be warranted at present chiefly in young and middle-aged patients of good general resistance, who show evidence of active hemolysis and in whom the spleen is moderately enlarged

4 The estimation of the blood-derived pigments in the duodenal contents is valuable in determining the degree of hemolytic activity present at a given time A comparison of the degree of hemolysis with the severity of the anemia would seem to be indicative of the productive power of the bone marrow

5 Preoperative treatment, especially transfusions, should be employed to influence the general condition of the patients and to improve the characteristics of the blood picture The operative risk is increased when the hemoglobin is below 35 per cent and the erythrocyte count less than 1,500,000 cells

6 Postoperative transfusions have not been given as a routine procedure, but transfusions have been successfully employed in postoperative relapse[6]

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[5] Forty seven splenectomies for pernicious anemia have been done up to Sept 1, 1916 with three operative deaths, an operative mortality of 6 4 per cent There have been no deaths in the last twenty nine cases

[6] In addition to the references already given the following will be found of interest

Archibald, A Transfusion in the Treatment of Pernicious Anemia St Paul Med Jour 1916 **18**

Balfour D C Indications for Splenectomy in Certain Chronic Blood Disorders The Technic of the Operation The Journal A M A, Sept 9 1916 p 790 The Spleen in Its Relationship to Pernicious Anemia Splenic Anemia and Hemolytic Jaundice Canad Med and Surg Jour 1916 **40**, 47

Krumbhaar, E B Late Results of Splenectomy in Pernicious Anemia A Statistical and Critical Review, The Journal A M A Sept 2 1916 p 723

Lee R I Minot G R, and Vincent, B Splenectomy in Pernicious Anemia Studies on Bone Marrow Stimulation The Journal A M A Sept 2 1916 p 719

McClure R D Pernicious Anemia Treated by Splenectomy and Systematic, Often Repeated Transfusion of Blood Transfusion in Benzol Poisoning The Journal A M A Sept 9 1916 p 793

THE PHYSICOCHEMISTRY OF THE GONOCOCCUS

IN RELATION TO IMMUNITY AND THERAPEUSIS*

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In an earlier paper[1] before this section there were submitted arguments, based on experiments, tending to support the conclusion that all forms of serums and vaccines hitherto employed against gonorrhea were without definite dependable value, and apparent reasons for their failure were emphasized Work of the past year tends to confirm these opinions and leads to further generalizations

Starting from the fact that a true and lasting immunity against gonococcus infections is found in all animals and, as a rule, in all tissues of man, save only in certain special tissues, we pass on to observe that unquestionably these receptive tissues in man are occasionally proof against infection, and appear to depend for their immunity, not so much on the presence of antibody, as on the existence of certain physical states within themselves and their fluids But in the present state of our knowledge we cannot hope to obtain an artificial immunity by any biologic method of treatment greater than that afforded by an attack of the disease itself, which, unfortunately, is negligible This statement is true in general of all infectious diseases, diphtheria being a type of exception, but those caused by members of the family of *Coccaceae* are especially apt to be recurrent It is strikingly apparent that an immunity such as may be induced against the *B typhosus* group, for instance, is unknown against the coccus group Unquestionably the reaction between germs and body fluids in the latter is of a somewhat different nature

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* Read before the Section on Genito Urinary Diseases at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Warden C C Vaccine Treatment of Gonorrhea The Journal A M A, Dec 11 1915 p 2080

I wish here to summarize my observations on the chemicophysical relations of the gonococcus to fluids in the laboratory and within the body, all of which are concerned as factors in the life of the cocci

The gonococcus is regarded as a cell composed of substances in a colloid state, having an extremely soft, delicate body and limiting surface extraordinarily sensitive to changes of osmotic pressure and surface tension When directly observed microscopically during active growth on artificial medium the cocci never have the appearance observed in smears of gonorrheal exudate, or in smears made after the removal of a colony from the medium, but their contours strongly suggest an ameboid state This deformity in contour is due, however, not to inherent ameboid power of the cocci, but rather to the influence of surroundings The conditions are strikingly similar to those existing in an oil-in-water system, that is, a heavy emulsion of oil in water, where the droplets of oil in dispersion are so closely packed as to assume polyhedral shapes Indeed, the gonococcus is quite comparable to an oily globule The microscope shows also the distortion of contour exerted by the "pull" of such substances as oil, glycerol and sugar solutions

I have shown[2] the gonococcus to contain various chemical substances which constitute an entity comparable to other cells of the animal type There is little or no unsaponifiable matter, like phytosterol or other higher alcohols, such as are found in large amounts in some other micro-organisms, notably in the tubercle bacillus We may regard the gonococcus as a cell the content of which is soluble in and homogeneous with the surface membrane or limiting layer, even though the latter may preponderate in fatty constituents, which may, in turn, be soluble in and miscible with external agents, such as fats, soaps and fat solvents The surface membrane or layer is semipermeable, that is, permeable to water under certain conditions, and probably some crystalloids, but probably impermeable to most colloids, including its own Throughout my reports there has been made use of the comprehensive, or at all events, collective term "fats" for want of a better one This word is intended to include an order of chemical substances and compounds comprising those known as oils, containing fatty acid radicals in their structure, the acids and their salts, and those of more complex character, also, built about the fatty acids, called "lipoids," a term which, says Leathes, is a cloak for ignorance and an indefinable limbo into which any one can thrust anything of which he knows little or nothing, including what is often not a compound of a fatty acid at all These fats form a group separate, and almost without exception, distinct from those other classes of compounds, the carbohydrates and proteins, all of which collectively make up the living plasma The fats peculiar to the gonococcus have been, in part, described earlier

The protoplasm of the interior of the cell probably consists of a colloidal aggregate dispersed in a watery external or continuous phase, while the behavior of the limiting layer strongly suggests the reverse type in which water is the disperse phase in an external fat-protein phase This condition is comparable to the physical systems of water-oil mixtures In the interior of the cell is the oil-in-water emulsion, in the limiting layer the water-in-oil emulsion A nice illustration is offered by Clowes, in which the former state is like a group of islands surrounded by water, and the latter like a cluster of lakes surrounded by land In the first the permeability to water is free, in the second it is conditioned The conditions which regulate the permeability are for the most part due to the influence of electrolytes, to surface tension changes, and to what Loeb calls the driving force of osmotic pressure On these depend the life or death of the cell

A suspension of gonococci in water constitutes a suspension colloid (suspensoid) and the cocci are anions, that is, they carry an electronegative charge From such a dispersed state or phase the cocci may be flocculated (agglutinated) and undergo electrical change by cations, the flocculating power of which increases directly with the valence, i e , hydrogen, calcium and aluminum The agglutinating property of so-called immune serum is exceedingly variable and unreliable It is equaled and even surpassed by various normal serums Gonococci suspended in solutions of various electrolytes behave in manner comparable to cells of animal tissues to electrolytes The electrolytes functionate in the two divisions as made by Osterhaut Anions, such as hydrogen dioxid, sodium hydroxid and potassium hydroxid, increase the permeability of the cell Sodium chlorid acts as an anion, since the chlorin ion is more readily adsorbed than the sodium ion These anions, let us observe, promote the formation of emulsions of oil in water, such as we conceive to exist in the interior of the gonococcus cell, and their action on the cell is destructive On the other hand, cations, such as calcium, decrease the permeability of the cell, tend to promote the formation of water-in-oil emulsions, such as we believe to exist in the surface film of the cell, and may be protective Gonococci, in the presence of solutions containing antagonistic electrolytes, such as sodium hydroxid, and sodium chlorid or sodium hydroxid and calcium chlorid, tend to become agglutinated and in a degree protected, or undergo autolysis and destruction in proportion to the concentration of calcium and hydroxid ions Isotonic mixtures, such as Locke-Ringer solution, particularly if containing a little protective colloid, such as gelatin or agar, exert no immediate change in permeability and tend to preserve the cocci I was so impressed with this fact years ago that I advocated such a mixture as a culture medium Anesthetics, such as alcohol, ether and chloroform, exert solvent power for fat in higher concentrations, in low concentrations they act like calcium ions, producing agglutinative, protective effects Gonoc grows well in the presence of small quantities of alcohol

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[2] Warden C C Jour Infect Dis May 1915

In all fluids in which water in excess is available, that is, in which the surface tension is high in the external phase, the cocci undergo autolysis and disintegration, primarily by reason of the semipermeable membrane Rupture of the cell due to distention by water depends in part on the weakness of the outer envelope If once excess of water gains entrance to the cell, electrolytically dissociated salts of protein may be formed by hydrogen or hydroxid ions of water, or by acid or alkali, and there is induced further swelling of the cell, due to the affinity for water of the protein ion In addition, some of the volatile fats of the cell are soluble or miscible with water and create a state tending to promote disintegration It is probable that the proteolytic ferments of the cell do not participate in the destruction to any extent during the life of the coccus

If the membrane is permeable to a solute of the outer phase, yet impermeable to its own cell contents, the ultimate state will be as if the outer fluid were water alone, since the concentration of the diffusible solute is soon equal on both sides of the membrane, whereon water is absorbed freely Hence suspensions of gonococcus in physiologic salt and various weak solutions behave similarly to suspensions in water With reference to the influence of osmotic pressure and surface tension on the gonococcus, it is interesting to observe the behavior of the latter under varying conditions of these forces Within the leukocytes, as in smears from gonorrheal exudate, the osmotic pressure of the white cell exceeds that of the coccus, the latter loses water and its surface tension is higher than in the surrounding medium In the presence of cations in solution, and of all fluids in which the cocci assume and maintain an approximately spherical contour, the surface tension is greater than that of the external fluid at the interface between the two On the contrary, the high surface tension of pure water and weak salt solutions and the greater osmotic pressure within the cocci cause their lysis and disintegration

On suitable culture mediums, and undoubtedly in the fluids of the body, the surface tension and osmotic pressure of the coccal cells are low, but about equal to those of the environment Through slight variation in the surface tension and osmotic pressures of the culture medium it is possible to study the reaction of the cocci through nice gradations from one extreme, at which all cocci autolyze and no growth occurs, through stages wherein colonies attain a certain size before all individuals composing them undergo lysis, giving the appearance of having "exploded," to the other extreme of optimum development

It is important to note the reaction of the gonococci to fats Neutral fats exert a protective influence The fatty acids in high concentration cause flocculation similarly to that produced by other acids and hydrogen ions In low concentrations, as 1 to 10,000, the agglutinative power is in abeyance and the surface tension at the interface between coccus membrane and water is lowered In addition there appears to be an adsorption of the acid by the coccus, together with solution of the former in the cell surface, or, in other words, a combination is formed whereby the permeability of the membrane is increased and the cell subsequently destroyed by imbibition of water The same applies to the salts and esters of the fatty acids in varying degrees The sodium and potassium salts of oleic acid are fatal to gonococcus through lysis in dilutions of 1 to 5,000, and the same effect is produced by salts of linoleic acid in concentration of 1 to 7,500 In this connection it is noted also that the fatty acids and alkali salts of the fatty acids composing the gonococcus exert even a greater effect, which may be taken to indicate a higher degree of solubility in the surface film

In general it may be said that the observations of Bancroft on the effects of the soaps on oil and water mixtures apply to the gonococcus Sodium soaps raise the surface tension of the oil, lower that of the water and tend to produce emulsion of oil in water Applied to the gonococcus, whose surface area we regard to be in the form of an emulsion of water in oil, sodium soaps tend to reverse the type, thus increasing the permeability of the membrane Calcium soaps, on the other hand, tend to produce emulsions of water in oil comparable to that existing at the surface of the gonococcus, and are thereby protective in their action The reversibility of colloidal states is a very important factor in the life of all cells

A suspension of gonococcus in serum or plasma, in vitro or in the body fluids in disease, constitutes the disperse phase of a suspensoid within another suspensoid (colloid) Each colloid may, and under proper conditions does, react on the other, leading to certain changes in the physical state of both Some of the changes are in a measure "specific" for the gonococcus, others may be produced as well by inert substances, such as starch, agar, kaolin and charcoal Let us examine a little closer the relation of the gonococcus to serum and body fluids The bodies of the cocci are in contact with a fluid of complex nature The surfaces of the cocci have become the disperse phase in a water suspensoid containing isosmotic values about equal to that of sodium and calcium salts, protein in a highly disperse state, sugar in solution, fats, fatty acids and soaps Laboratory observations indicate that the influences which operate on the gonococcus in water and various salt solutions also obtain with suspensions in serum Increase in water content of the external phase (serum) and corresponding decrease in concentration of salts and other matter produce effects approaching those caused by water, whereas increase in ionic fat or soap content exerts influences comparable to what are felt on addition of these substances to water

Through the phenomenon of adsorption the gonococcus membrane may in such colloidal solutions become more impermeable to water, leading to the checking of autolysis in laboratory experiment and tending to prolong or insure the life of the coccus in the body fluids On the other hand, the fact that there appears to be only very slight diminution of lysis of gonococcus in suspension in normal serum leads one to conclude that the adsorbed substances, partly of a fatty nature, may not materially decrease the permeability of the surface membrane or protect the cocci Theoretically the adsorbed fats, being more or less readily soluble in the gonococcus membrane, would tend to increase the permeability, and show that the fats may serve, at any rate in part, as a protection to the body In this connection it is not without interest to bear in mind the well-known clinical effects of fat solvents, such as alcohol, on the course of gonorrhea and other infectious diseases, and the laboratory effects, as shown in the disappearance of complement fixation reactions

The gonococcus is able to survive and propagate in a nutrient colloidal medium in which the balance of surface tension, osmotic pressure, density and other physical conditions in both is properly maintained. The balance is a nice one and slight variations in the physical state of the medium may destroy this balance and kill the organisms. Experiment indicates that on suspension of gonococci in fresh normal serum the germ bodies adsorb from the serum certain substances in part of a fatty nature, but that these fatty substances are of a different character from the fats of the cocci. The serum which has been subjected to the suspension of cocci in it becomes toxic, and kills the animal from which it was drawn, the homologous animal, in anaphylaxis. There is every reason to infer that a like though less severe phenomenon may occur within the body during the course of gonorrhea.

The gonococcus undergoes lysis to a greater or less extent in serum in laboratory experiments, and unquestionably the same is true at certain stages in the course of the infection within the body fluids. The serum therefore gains, besides protein and other substances not necessarily toxic, fats from the cocci. The protein constituents of the gonococcus appear to exert a negligible so-called antigenic effect on the body. The fats, on the other hand, produce considerable influence, though probably of a different kind. I have shown previously that the gonococcus fats serve as antigen in the complement-fixation. It is inferred that this phenomenon is due to the influence of these fats on the body fluids. It is apparent that this influence is not only brief, but is also not continuous, or rather that the gonococci undergo periods or waves of increased lysis and that these periods are synchronous with periods of positive complement fixation and with clinical signs of increased activity of the cocci, as shown by increased discharge and the numbers of them in the smears. Observations lead me to infer that an interrelationship exists between aggravated first-stage symptoms, lysis and excess of gonococcus fats in the body, and positive complement fixation on the one hand, and the following amelioration of symptoms, negative complement fixation and disappearance of the cocci and their fats on the other.

That the presence of excess of gonococcus fats in the body fluids is in relation to clinical improvement and even destruction of all cocci present may be explained by the fact that the substances that easily obtain entrance into the cell are in part, aside from water, just those that are soluble in fats or miscible with them. The fats of the gonococcus themselves are naturally most soluble and miscible of all, and if the surrounding fluids or serum contain sufficient of them, or excess over the ordinary fats of the serum, it becomes possible for the permeability of the cell membrane to be increased and destruction of the cell by water or other agents to ensue. In this connection it should not be forgotten that the solubility referred to may be only a more or less relative term to designate a surface tension and adsorption effect leading to modifications in the colloidal state of the membranes.

I stated in a previous paper before this section that excellent clinical results had followed in my hands the administration of the gonococcus fats in an oil menstruum. It is believed the foregoing conclusions may afford a working hypothesis for the fact. As control on the action of various fats following inoculation I have found that apparently no therapeutic effect is exerted by such neutral fats as olive, cottonseed, cocoanut, cod liver and linseed oils, or by the administration of such unsaturated fatty acids as oleic and linoleic in doses of 0.1 gm dissolved in oil. One fact learned from these experiments controlled by similar injections into laboratory animals is that parenteral injection of oils and fatty acids result in a partial local conversion of the free acids into the corresponding sodium salts.

Complement Fixation. The antigen composed of the gonococcus fats dissolved in alcohol has now been tested in over 1,900 cases. The work has been delayed partly by the difficulty of making sufficient of the antigen, the process requiring immense quantities of culture material, and partly because I was not satisfied with it. As was said a year ago, the question whether the fats as employed might not contain traces of protein did not then concern us, but later the question demanded an answer. Accordingly the presence of a protein rest was eliminated by converting the fats into the sodium salts of the fatty acids and purifying them repeatedly from alcohol. These salts, dissolved in alcohol, were found to possess much better antigenic power than the original. This antigen therefore has been used as control in our work and has substantiated the conclusions we formed a year ago. The expense and labor incident to the preparation of the antigen was the next difficulty to be overcome. This was done in the following manner. A study of the gonococcus fats showed them to possess certain physicochemical characters, acid values, molecular weights, melting and solidifying points, iodin values, etc., and indicated their relative proportions in combination. From these data it was possible to combine fats with identical values in the proper proportions. After some practice with tests alongside the control antigen this synthetic or artificial antigen was found to check perfectly and has since been employed in several hundred tests. As with the control, it was found also that alcoholic solution of the sodium salts of the fats composing the artificial antigen gave better results. A review of the cases tested with these antigens will form the material of a paper by Dr. J. B. Kelly and myself.

The foregoing facts lead to the question of the treatment of gonorrhea by the fats. Since my last paper no systematic work has been done, owing to the difficulties already mentioned and the necessity for centralizing effort on the study outlined. From our past experience and from the theoretical considerations arrived at I am convinced that the method of treatment warrants a fair and extended trial. The plan contemplates treatment with the gonococcus fats so far as is practicable and with the artificial combination in particular, since the latter affords less chance for variation in product and more accurate combination by weight. There is also indicated treatment with the salts of the artificial fats, preferably intravenously, as experiment has shown that in therapeutic doses so administered these salts, easily emulsified in salt solution or water, are harmless to animals.

With regard to theoretical and practical considerations of the phenomena concerned in the response of the body to gonococcus infection, in complement fixation and in therapeutics, I am convinced that hard and fast ideas of the so-called antigen-antibody combinations, amboceptors, etc., should be modified, or perhaps better, abandoned altogether. The problems are bound up with those physicochemical phenomena of surface tension, osmotic pressures, permeability and grows well in the presence of small quantities of alcohol

In all fluids in which water in excess is available, that is, in which the surface tension is high in the external phase, the cocci undergo autolysis and disintegration, primarily by reason of the semipermeable membrane Rupture of the cell due to distention by water depends in part on the weakness of the outer envelope If once excess of water gains entrance to the cell, electrolytically dissociated salts of protein may be formed by hydrogen or hydroxid ions of water, or by acid or alkali, and there is induced further swelling of the cell, due to the affinity for water of the protein ion In addition, some of the volatile fats of the cell are soluble or miscible with water and create a state tending to promote disintegration It is probable that the proteolytic ferments of the cell do not participate in the destruction to any extent during the life of the coccus

If the membrane is permeable to a solute of the outer phase, yet impermeable to its own cell contents, the ultimate state will be as if the outer fluid were water alone, since the concentration of the diffusible solute is soon equal on both sides of the membrane, whereon water is absorbed freely Hence suspensions of gonococcus in physiologic salt and various weak solutions behave similarly to suspensions in water With reference to the influence of osmotic pressure and surface tension on the gonococcus, it is interesting to observe the behavior of the latter under varying conditions of these forces Within the leukocytes, as in smears from gonorrheal exudate, the osmotic pressure of the white cell exceeds that of the coccus, the latter loses water and its surface tension is higher than in the surrounding medium In the presence of cations in solution, and of all fluids in which the cocci assume and maintain an approximately spherical contour, the surface tension is greater than that of the external fluid at the interface between the two On the contrary, the high surface tension of pure water and weak salt solutions and the greater osmotic pressure within the cocci cause their lysis and disintegration

On suitable culture mediums, and undoubtedly in the fluids of the body, the surface tension and osmotic pressure of the coccal cells are low, but about equal to those of the environment Through slight variation in the surface tension and osmotic pressures of the culture medium it is possible to study the reaction of the cocci through nice gradations from one extreme, at which all cocci autolyze and no growth occurs, through stages wherein colonies attain a certain size before all individuals composing them undergo lysis, giving the appearance of having "exploded," to the other extreme of optimum development

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The physicochemical entity of the gonococcus reacts with the serum complex in a definite manner, inducing certain changes in each, which operate, on the one hand, to viability of the germs, on the other, to their extinction, depending on a shift of balance between forces in which the fats undoubtedly play an important role Into this view is admitted the specificity of antigen, but I am inclined to dispute the antigen-antibody idea as ordinarily understood The solution of the problem is found in less vague processes

It is perhaps not inadmissible at this time to state that the ideas expressed here with reference to the gonococus may be found serviceable in work on other bacteria, particularly on other members of the *Coccaceae* group, but also on organisms rich in fats, which produce such changes in the serum in disease as to lead to complement fixation with fat antigens Only recently we have produced in the laboratory an artificial syphilitic antigen for use in the Wassermann reaction This antigen has been tested and made to agree with two standard antigens, consisting of alcoholic extracts of human heart, which had been shown to agree with each other From the facts noted there is drawn the tentative inference that the fixation of complement in gonorrhea and syphilis is due to the influence of fats alone

ABSTRACT OF DISCUSSION

Dr Louis E Schmidt, Chicago Warden reiterates "that all forms of serums and vaccines hitherto employed against gonorrhea were without definite dependable value" I need not enumerate the various agents included in this category—as I include them all—and wish to emphasize that any and all have not come up to expectations in clinical work Whether or not Warden's exhaustive and painstaking work is sufficient to explain the reasons thereof yet, I believe it points out the error of our ways, when it comes to the promiscuous use of serums and vaccines in gonorrheal diseases He must give still more evidence in regard to the "fat" of the gonococcus before it can be regarded as a specific in treatment As to the antigen, I must admit that it has shown itself superior to other antigens and for this reason the "fat agents" may also be proportionately better than the serums and vaccines used previously Certainly, the theoretical and practical bearing of the problems of chemicophysics on immunity deserves the most careful consideration There can be no question that the finding of the specific antibody in the blood gave rise to the theoretical basis of vaccine treatment For this reason all the serums and vaccines whenever used have been to some extent controlled with gonorrheal complement tests To some extent symptoms and signs are in accord with this view It was noticed that following injections of certain agents, a rise in temperature was not uncommon Many cutaneous reactions occurred, local reactions became more pronounced and then lessened in severity Yet with all this evidence there has always been a belief that many satisfactory results have not been based on the action of specific antibodies and much experimental and clinical work has been done to show that certain albumins have given favorable results and in most instances that following the injection thereof the rise in temperature has been noticed and that the changes thus produced were the cause of the improvement In my opinion there is no question that vaccines and serums of all types that have been used in gonorrhea and its complications have not come up to our expectations

Dr Edward L Keyes, Jr, New York I have been guilty of expressing in print great confidence in various kinds of vaccines and serums At the present moment I do not feel any confidence in vaccines or serums I have arrived at the same conclusion as Dr Warden and Dr Schmidt

Dr Benjamin Gruskin, Chicago I have used Warden's antigen in connection with other gonorrheal antigens In fifteen cases, nine that were negative or faintly positive with other antigens showed a sharper reaction with Dr Warden's antigen Other cases that I would have thought negative I have been able to report as positive, and the clinical history, as the doctors reported to me afterward, proved that the patients had had gonorrhea a year or so before I find it the best antigen I have ever used

Dr Theodore Baker, Pittsburgh I have had some apparent success with vaccines, and, using the same technic, have had failures On reviewing the histories of the cases that had been a success and those that had been failures I found one significant fact In those that had been a success the vaccines produced a marked local and a marked general reaction In those that had been failures there was the very slightest reaction with large doses of the vaccine, or no reaction at all I found also that by keeping the vaccines on ice they lost their potency I think that specific vaccines are still worth trying We should be cautious in using other nonspecific proteins and giving up the general use of specific vaccines, as has recently been attempted

Dr John R Brown, Tacoma Wash We have tried autogenous vaccines, stock vaccines, simple vaccines and mixed vaccines and I am satisfied that they have not made good Occasionally I have seen a case where they seemed to do some good, and those are the cases, as mentioned by Dr Baker, that gave an intense reaction Therefore, if we are going to expect any good at all we must use larger doses than those advised, or at least large enough to cause not only a local but a constitutional reaction I also think it does not make much difference what organism you use, just so you get the reaction, because perhaps it is true, as pointed out recently, that it is a protein poison that causes leukocytosis and that the only virtue vaccines possess is that of stimulation to leukocytosis I was very much interested in the changes in morphology in the gonococcus when treated with various solutions We have noticed the same occurrence in our own work For two years or more we have been experimenting in a comparatively large number of cases with heated sounds treatment of gonorrhea In the hands of a man who will make a diagnosis and locate the disease this treatment is of immense value, especially in the acute cases and even in the chronic cases Many cases of chronic prostatitis and seminal vesiculitis, when treated through the rectum through a suitable rubber bag heated by water running through it at 135 degrees, are favorably influenced It was after these treatments that we noted the morphologic changes Dr Warden mentioned

Dr Edwin Beer, New York The remark made by the last speaker and the previous speaker should be challenged that if there is a reaction possibly we get good results With a very varied experience not only in genito urinary but in general surgery treating staphylococcus, streptococcus, gonococcus, tuberculous and other infections, I have come to the conclusion which Dr Schmidt expressed that there is nothing absolutely reliable in the vaccine treatment During the last year and a half we have been following a series of cases, mostly genito-urinary cases due to tuberculosis, with the Rosenbach tuberculin, which has been very much vaunted abroad and which is a vaccine treatment, and the general conclusion which we have reached in treating fistula after nephrectomies and due to tuberculous epididymitis is that the Rosenbach tuberculin is of practically no value The second vaccine with which we worked was the Nicolle vaccine for gonococcus infections, and although once in a while we saw remarkable results, the totality of results were no better than from any other treatment So in general I would say that Nicolle vaccine has not been satisfactory When it comes to treating cases with colon vaccine I think everybody is reminded that there may be something in the treatment, although experience, on the whole, is opposed to the view that it is specific For instance, take pyelonephritis due to the colon bacillus All of us have treated protracted cases with high temperature with vaccine, and every once in a while we see a remarkable result but when that result is exceptional, when it does not follow with regularity in colon pyelonephritis cases, both in the acute and chronic stages, one cannot help but doubt that the success in one case was accidental rather than the result of the vaccine treatment. So that I would be inclined to go on record in stating that up to date, the results from vaccines have been very unsatisfactory I am now beginning to treat a series of cases with sensitized vaccines following Beredka but owing to the difficulty in procuring autogenous sensitized vaccines, we are compelled to make use of the stock preparations prepared by Mulford

Dr. W Jones Wallace Oklahoma City I have used vaccines a good deal, and to my mind they should be used in selected cases or in complications In acute cases I never use them, but when it comes to the chronic cases or when there is an epididymitis or an arthritis or some other complication, vaccines can be used with advantage The great trouble is that we do not use vaccine in large enough doses I often use a stock vaccine but I do not follow the directions given in the circulars I repeat the dose each succeeding day until I get some reaction

Dr Martin Krotoszyner, San Francisco The efficacy of vaccine therapy, which is undoubtedly an important addition to our armamentarium against gonorrhea, is jeopardized by its frequent uncritical application in the past Like other therapeutic measures, vaccine therapy was in the beginning of its use praised to the skies, and is of late because it has not yielded the expected results, meeting with a great deal of adverse and unmerited criticism, which more justly should be applied to the unscientific use of this therapeutic agent The indiscriminate use of stock vaccines for all forms and stages of gonorrhea should be discouraged It is well known that the various vaccine strains of the gonococcus differ widely in endotoxins and that it is, therefore, impossible to bring into one vaccine all strains required for the formation of antibodies Thus divergent results in vaccine-reactions and therapeutic efficacy in apparently identical clinical lesions find their explanation The solution of the problem in getting more uniform results is dependent, *in my opinion* on the application of carefully prepared autogenous vaccines Vaccine therapy, under these conditions, should always be conducted clinically, and good results may be expected by carefully conducted vaccine therapy at hospitals, equipped with scientific laboratory facilities for these purposes

Dr E G Crabtree, Boston I cannot leave unemphasized one point that Dr Warden has brought out which I think is probably the key to vaccine treatment We have been accustomed to give vaccines without carefully studying bacterial life in the way that Dr Warden has studied the gonococcus

It is undoubtedly true that most bacteria in their acute stage produce antibodies which persist for varying lengths of time, the exact duration of which we do not know, and in many cases we are not concerned with it. Bacteria which are quiescent or which occupy some remote part of the body apparently do not produce antibodies, but diagnoses are made because of that antibody production which occurred during the acute infection It has already been established by clinical use of vaccines that recurrences are often prevented, and in the great majority of cases symptoms relieved That is particularly borne out in the vaccine treatment of colon pyelonephritis You can feel sure that recurrence will not take place As a curative agent, however, the colon vaccine has proved a failure We have nothing to indicate that the products elaborated in the blood reach the urine as such, and unless the process is acute our vaccine treatment is probably not effective Undoubtedly a more careful study of the cell content of the various bacteria and a more careful study of blood manifestations, particularly in the acute stage of infection, will lead us to a better working basis in vaccine therapy

Dr Victor G Vecki, San Francisco While I have more than one patient who swears by me because I cured him with autogenous and other vaccines, I must say that I have abandoned this treatment I have come back to the conclusion I cited several years ago that the results obtained in vaccine and serum treatment are probably due to the circumstance that the urethra having previously been overtreated is under the vaccine treatment given some rest at the expense of the patient's 'hide"

Dr Louis E Schmidt Chicago I had reference chiefly to gonorrhea and its treatment with vaccines and serums made from the gonococcus I do not doubt that there are many cases that have been improved and possibly cured by the various vaccines and serums and combinations that have been used The question is whether or not it is by specific antibodies There has been an enormous amount of work done in connection with the injection of so called harmless remedies or agents for instance, milk. Milk is being injected in 5 or 10 c c doses into the glutei and exactly the same reactions occur and the same astounding results have been shown Now, how is the result obtained? Sometimes there is a high rise of temperature, and then possibly by-products have been produced by injecting these agents Whether or not they are specific, that is the question For that reason, I am still in doubt as to whether it is necessary, or whether the agents that have been produced in the gonococcus are absolutely essential For that reason I am inclined to believe that some of the artificial products that Dr Warden has taken up will probably prove as successful, if not more so, than those that have been in use up to the present time

Dr Carl C Warden, Ann Arbor, Mich One further word about these fat antigens and how they work If we were to regard the gonococcus alone from which a fatty antigen has been obtained for complement fixation, it would require considerable temerity to assign all antigenic properties to fats alone but only lately we have been able to do the same thing with the Wassermann, that is, we have made an artificial fat antigen that concurs with two other antigens which have been standardized and which agree among themselves Many substances of a fatty nature put into a solution will immediately lower the surface tension of that fluid a great deal, and any substance that lowers tension is bound to appear at the interface between two systems and these fats are found at the interfaces of the substances composing the solution In consequence, they must act in some such way in complement fixation in order to allow or prevent the hemolysis The ideas as to antibodies will gradually undergo a change and we may come to view the antibody not as a definite substance, but rather as a condition or a state of the body fluids Recent experiments have shown that normal serum removed from the body becomes toxic under certain conditions Its toxicity will wear off in a short time, and it will undergo fluctuations of toxicity and nontoxicity During the toxic stage the complement disappears Whether that is a *definite substance* we are beginning to doubt It looks as though the complement itself might be a highly dispersed state or condition in the serum itself or in the body fluids We know that in living tissues in health fat is not commonly seen in the cells, but once a foreign substance like a fat solvent is applied, some of these cells will show fat globules These cells do not contain any more fat than they did before, but the colloidal state has undergone such a change that the fat globules have been allowed to coalesce So I think that in some of these forms of disease caused by the *Coccaceae* we will come to believe that the antibody itself is a very slight factor, that more depends on the state of the body fluids or the state of the serum, and that certain conditions may arise where the germs can exist no longer, and other conditions may exist where the germs may be able to multiply and grow I believe the time is coming soon when we shall be able to cure an attack of gonorrhea, but it will have to be done only by careful study of the condition or state of the body fluids of the patient at the time I believe there is a relationship between this complement fixation and the state of the blood whereby the life of the gonococcus is extremely precarious, and that we shall be able by some means, possibly by these fat remedies which I have suggested, to shift the balance of the surface tension just sufficient to cause the death of the coccus forms that are there It will not produce an immunity, it will not be fool proof under any circumstances, but it will probably be sufficient It will not be able to dispose of all the gonococci that can exist in a saprophytic condition on the mucous membrane, but it will kill the gonococci inside the cells or tissues As Dr Crabtree says in relation to the colon bacillus, the vaccine will relieve the inflammation in colon bacillus infections, but it will not get rid of the colon bacillus

SPASMODIC ASTHMA

REPORT OF CASES ILLUSTRATING ITS ANAPHYLACTIC NATURE AND THE DIFFICULTIES IN THE WAY OF SUCCESSFUL TREATMENT

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In a previous paper,[1] special consideration was given to the nature and treatment of bronchial asthma Since then a number of cases have been treated in accordance with the views therein set down, and a good many inquiries have been received relative to the subject, therefore I have decided to make the following reports in the hope of assisting other workers in the solution of the problems confronting them

With increased experience, the conviction expressed in the paper referred to has been strengthened, and in particular it has been demonstrated that no pains must be spared in searching for and removing every diseased process which may serve as a focus for protein absorption Furthermore, in many cases more than one such focus exists, and it would seem as if sensitization to protein from one source renders the individual peculiarly liable to sensitization to other proteins and to proteins absorbed from different situations within his body This is especially well shown in persons suffering from so-called hay-fever or hay-asthma And here it may be stated that, with one exception, the cases herein reported are instances of typical spasmodic asthma independent of the summer and autumnal disease generally caused by sensitization to some plant or animal protein The foreign protein at work was furnished within their own bodies, and not from sources situated without their own economy

As will be seen, the focus or foci may generally be found in the nares or accessory parts, as ethmoid or sinuses, but diseased tonsils and suppurative processes about the gums or tooth roots may prove a very fruitful source of mischief In cases of long standing with frequent repetition of asthmatic seizures, chronic bronchitis often supervenes and then may furnish the bacterial protein after all other foci have been removed by operation That a focus of infection outside the respiratory tract may be responsible for the asthma is quite possible, as was shown by the case mentioned in my previous article of freedom from asthma so long as the infected gallbladder was permitted to drain freely, and of return of the paroxysmal dyspnea when drainage ceased

It should be stated, moreover, that further acquaintance with this class of sufferers suggests that some additional factor as yet unsolved may underlie or be associated with their sensitization to a foreign protein That spasmodic asthma is not a nervous affection, as assumed by early writers, and, indeed, is not due to the effect of the poison on the central nervous system is proved by the occurrence of the phenomena even after all connection between the bronchioles and spinal cord was destroyed in the guinea-pigs experimented on by Auer and Lewis Nevertheless, one cannot see much of these sufferers without getting the impression that some sort of connection does exist between the asthmatic condition and the nervous make-up of the individual Whether there is some peculiarity or susceptibility of bronchial muscles predisposing certain persons to this particular manifestation of anaphylaxis, or whether the instability of the nervous system seen in them is a result or effect of the asthma is difficult to determine Certainly the question is suggested, Why do some persons manifest asthma when others with an identical focus of infection and the same organisms in cultures from the material of the foci do not show asthma? Dogs and guinea-pigs react differently to the same protein, but these animals are of different species What, then, is it in human animals of the same species which causes a different reaction to apparently the same protein? It would seem as if some additional and as yet unknown factor still has to be discovered

Case 1—Mrs N H B, aged 55, was seen, Sept 1, 1914 because of severe attacks of spasmodic dyspnea from which she had suffered for the better part of a year The family history was negative, and the personal facts, briefly stated, were tonsillitis and appendicitis ten years before, and in September, 1913, an acute coryza which at length resulted in bronchitis for which she spent the winter in the South Returning North in the early spring she became so much worse en route as to necessitate stopping in Atlanta, Ga, for medical care When the patient recovered from the illness, which, as seems likely, was a bronchopneumonia, her dyspnea took on the character of typical spasmodic asthma After spending the following summer in Colorado under competent medical care without benefit, she returned to her Chicago home and consulted me

It was learned that she had for months been having recurrences of spasmodic dyspnea quite regularly every four hours which yielded only imperfectly to subcutaneous injections of a solution of epinephrin, from 4 to 8 minims of a 1 1,000 solution She also thought she obtained slight relief from her difficult, harassing cough from 4-grain doses of potassium iodid three times daily Examination of the chest disclosed hyperresonance with characteristic prolongation of expiration and copious sibilant rhonchi In the left lower back however, was a small area in which slight dulness could be detected and medium sized mucous rales could be heard, signs thought to have resulted from the patient's acute illness in Atlanta The heart was negative in all respects, as were blood pressure, temperature, blood count and urine A competent rhinologist and laryngologist reported the nose and throat free from any abnormality responsible for the asthma Films were then made of the teeth and disclosed a small alveolar abscess for the cure of which one tooth was extracted, but without appreciable effect on the asthma A roentgenogram of the lungs revealed what appeared to be a small area of thickening in the posterior base of the left lung where it was thought a patch of bronchopneumonia had existed

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[1] Babcock R H The Nature and Treatment of Bronchial Asthma, The Journal A M A, June 26, 1915, p 2115

During the two weeks required for this study of the case, asthmatic paroxysms were of daily and nightly occurrence, necessitating frequent resort to epinephrin. A vaccine was now prepared from the sputum, and consisted of *Micrococcus catarrhalis* and was administered carefully with appreciable lessening of the bronchitis, though slight influence over the asthma. A week later culture of the sputum yielded *M. catarrhalis* but in addition the pneumococcus, an anaerobic fusiform bacillus and *Streptococcus viridans*. A second vaccine was therefore prepared and carefully administered until toward the end of October. Some improvement was shown for a time, but a relapse occurring, a third vaccine was made, since now the culture from sputum yielded a preponderating number of the fusiform bacillus. In November, asthma was less frequent but cough was more troublesome with less stringy, more fluid mucus.

The course of the disease was henceforth most checkered with periods of improvement interspersed with others of aggravated dyspnea, more troublesome cough, and an increased number of wheezing and mucous rales, so that not only were repeated changes made in the vaccines, but also recourse was had to various expectorant remedies, including aspidospermin, which seemed to afford the greatest relief. In March, 1915, after a short period of encouraging improvement, the patient contracted a sharp rise of temperature with greatly aggravated cough and dyspnea, though not of the paroxysmal type previously observed. At this time, culture of the sputum showed typical pneumococcus and practical disappearance of the organisms previously obtained. Nevertheless with subsidence of temperature and disappearance of pneumococci the asthma recurred in full force. At length in the summer of 1915 the asthmatic condition mended appreciably, and we were all encouraged, only again to be disappointed by return of the asthma in full vigor by September. During all these months everything had been done that could be devised with no greater result than to rid the lungs of most of the bronchitis, save in the left lower back, where evidently some permanent change in lung structure had taken place.

At times when this patient's asthmatic symptoms were least apparent a frequent racking cough still persisted and caused considerable feeling of stuffiness, as she expressed it. Finally in October she decided to change physicians and I was dismissed. What afterward was done is known only through hearsay, but it is known that a number of new vaccines were prepared and administered without, however, entirely relieving the asthma. Finally completely discouraged, this poor sufferer ended it all by voluntary and tragic death.

CASE 2.—Mrs. D., aged 44, seen March 23, 1915, had suffered from bronchial asthma since the early fall preceding. She was found to have small but diseased tonsils, an alveolar abscess, chronic bronchitis and a pyosalpinx. The alveolar abscess was removed by extraction of the diseased teeth, and anaerobic and aerobic cultures of the pus on blood agar and ascitic bouillon showed *Streptococcus mucosus* and pneumococcus-like diplococcus. From this pus no vaccine was prepared as the evacuation of the abscess cavity was thought sufficient to remove protein absorption from that focus. As the patient had chronic bronchitis with sputum, a culture of this was next made after careful washing and it showed anaerobically and aerobically *Micrococcus catarrhalis*, *Diplococcus mucosus* and a very few influenza-like bacilli. Owing to the absence of fusiform bacilli no vaccine was prepared until toward the end of April when a few anaerobic fusiform bacilli were found in addition to *Micrococcus catarrhalis* and *Diplococcus mucosus*. In June another vaccine was prepared of the same organisms, except that the fusiform bacilli were more numerous. On regular cautious employment of this vaccine, together with a cough mixture containing lobelia, improvement proceeded gradually though not uninterruptedly, until by July she declared herself free from asthma.

In October following she contracted a coryza coincidently with menstruation, and soon thereafter experienced a recurrence of her old enemy in severe form. Completely discouraged she not long afterward left Chicago, and has been heard from but once since when severe asthma was reported. During her asthma-free interval, the tonsils were extirpated, but despite the advice to have the pyosalpinx removed, this was not done. How much influence could be attached to this focus of infection could not be determined, but it was considered a mistake to leave it unoperated, especially as it was uncertain whether the relapse in October was due to the coryza or to absorption from the pyosalpinx coincident with the appearance of the menses.

CASE 3.—Mrs. B., aged 29, examined Aug. 11, 1915, had suffered from asthma since the age of 6. She was found to have chronic ethmoiditis with polypi, badly infected tonsils and alveolar abscess with chronic bronchitis. Culture of the pus from the jaw showed no fusiform bacilli, but *Diplococcus mucosus*, *Streptococcus viridans*, staphylococcus and the diphtheroid bacillus. No vaccine was prepared because of the belief that the anaerobic fusiform bacillus is the organism having most influence over the asthma, and that without it vaccines would be inert. In addition to extraction of the diseased teeth, a tonsillectomy and removal of the nasal polyps, as much work was done on the ethmoid as was possible at the time. August 16 a vaccine was prepared from the tenacious slightly purulent sputum and contained a large number of the fusiform bacillus.

After completion of all the operative work, the patient returned home and continued the use of the autogenous vaccine until December, when another specimen of sputum showed on culture the fusiform bacillus as well as several other organisms. Treatment was continued along the same line during the succeeding winter but without as decided improvement as was hoped. At length, early in the past summer this patient reappeared in Chicago in consequence of exacerbation of her asthma, although it was not so distressing as a year previous. Examination disclosed retention of nasal secretion in consequence of a hypertrophied turbinate, and in addition considerable bronchitis. Proper treatment of the nose was at once instituted, and a vaccine was prepared from the sputum, the culture showing as before the anaerobic fusiform bacillus. At present writing, August 24, she is receiving this vaccine and is fairly comfortable, though not wholly free from some asthmatic stuffiness.

CASE 4.—Mrs. S., aged 32, sought advice Feb. 17, 1915, because of asthma. There was a history of appendicitis fifteen years before and a curettage two years ago, but no other definite illnesses. She was found to have chronic ethmoiditis with polypi, pyorrhea, diseased tooth roots and extensive bronchitis in both lungs. There was also a systolic murmur in both mitral and tricuspid areas. The nasal and mouth conditions required much operative work, and this being impossible for financial and other reasons, among the latter being daily asthmatic seizures, treatment dragged along for many months. Meanwhile attempts were made to lessen the bronchitis and cough by means of various expectorant and sedative remedies as well as by vaccines made from the sputum. This in June, 1915, contained *Micrococcus catarrhalis* and *Diplococcus mucosus*. July 25, 10 minims of this vaccine were followed by severe reaction, fever, increased cough and asthma. August 7, the patient reported the extraction of some of the teeth and was feeling somewhat better. August 30 the asthma was less and a slight gain in weight was recorded. September 8 more asthma was reported after the last injection but the lungs yielded no rales except in the lower right back. September 15 a second vaccine made from sputum contained *Micrococcus catarrhalis*, *Diplococcus mucosus*, staphylococcus and a few fusiform bacilli. From this date my records are wanting as the patient has not come at all regularly for the vaccine injection. She has submitted from time to time to palliative but not radical operations on the nose since her reduced physical state was such that the rhinologist dared not subject her to any severe operative procedure. She is, therefore, after eighteen months still suffering from her old enemy. It is considered unfortunate that this patient's circumstances have not permitted prolonged hospital treatment with a view to establishing sufficient resistance to enable her to bear whatever operations might be necessary to remove all foci of infection in the ethmoid and elsewhere.

CASE 5—Mr L, attorney, aged 41, examined July 19, 1915, had suffered from asthmatic attacks since May, 1914, the seizures being most frequent at night Family history was negative, but in personal anamnesis there were frequent attacks of grip, an appendicectomy a year before, and alcohol to excess some years earlier Careful physical examination disclosed no disease of the heart, kidneys and other viscera, but a few fine mucous rales in the lower back on both sides The turbinates were fairly large and the septum posteriorly was deflected to the left, but these conditions did not interfere with free drainage The tonsils were large, submerged and showed open crypts without retained secretions The gums and teeth appeared to be in good condition, but as the leukocytes numbered 13,200, roentgenograms of the teeth were made, which disclosed two abscesses at the roots of the right upper bicuspid and adjacent incisor These two teeth were extracted and the abscesses were cleaned out Ten days later cultures of the sputum were made and disclosed *Diplococcus mucosus,* an influenza-like bacillus, and the fusiform bacillus A vaccine was prepared and administered for a month, at which time the asthma had vanished, although cough and a few rales still persisted Thereupon, August 25 another culture of the sputum was made and a vaccine was prepared which now contained *Diplococcus mucosus,* 40 per cent, *Micrococcus catarrhalis,* 50 per cent, and a small number of the streptothrix and bacillus mucosus capsulatus This second vaccine caused prompt disappearance of all signs of bronchitis, and by the first of September the patient felt so well that he insisted on returning to his home to take part in a stormy political campaign Consent was accorded, provided he would take along the vaccine and have it administered, but as the sequel showed this was a mistake Either because of the reaction following a too large dose of the vaccine, or because of his strenuous duties, his asthma soon reappeared and necessitated recourse to epinephrin Nevertheless in a letter just received he states that with exception of the three attacks which occurred soon after his return to his home, he has experienced no paroxysms, but that after lying down in bed at night he sometimes notices a little wheezing On the whole, however, he considers himself well, but is not certain whether this is due to the treatment received in Chicago or whether, as assured by some of his medical friends, he would in time have grown out of the asthma at home In my opinion, formed from observation of asthma cases, he would still be suffering with unabated intensity, had he not got rid of his mouth and bronchial foci of infection This reflection leads to the conjecture that the wheezing still noticed by this patient may find its explanation in the fact of some persisting bronchitis which the vaccine did not wholly clear up

CASE 6—Miss L, aged 48, examined Oct 7, 1915, had suffered from nightly attacks of asthma for a year and a half, although her initial seizure occurred four years before, after what she called a cold She was found to have badly diseased tonsils and abscesses at the roots of three teeth There was no evidence of chronic bronchitis The tonsils were removed, the diseased teeth extracted, and a vaccine prepared from the pus of the alveolar abscess This vaccine contained a variety of organisms, and among these the fusiform bacillus She has been seen within the past few weeks, August, 1916, and declares she has had no asthma since recovering from the tonsillectomy She thinks the vaccine was not necessary, although it was employed for a few weeks

CASE 7—Mrs B L, aged 36, had suffered from asthma since early childhood, but had not developed secondary bronchitis She was first seen by me in 1900, at which time she was having hemoptysis believed to be due to left apex tuberculosis From this she recovered, but since then has suffered from her asthma frequently, especially in bad, foggy weather She had chronic ethmoiditis, a sinus infection and infected tonsils The nasal and sinus disease was treated from time to time, but not radically until last spring, at which time the tonsils also were removed She was entirely free from asthma until the onset of hay-fever toward the end of August, 1916 As it is, her dyspnea lacks the intense paroxysmal character of true bronchial asthma, but necessitates recourse to injections of epinephrin

CASE 8—A man, aged 22, who is now undergoing treatment, has been greatly relieved, although he still declares he is not wholly free He had suffered from asthma since childhood, and showed signs of chronic bronchitis in addition to a greatly deflected septum at its posterior part which completely prevented free drainage This condition was fully corrected by a difficult but successful operation, and he now is receiving a vaccine prepared from his sputum and containing the anaerobic fusiform bacillus among other frequently associated organisms As this patient still resorts to some drug—morphin or cocain—his statements are considered unreliable as to the intensity of his nocturnal dyspnea and the necessity of resorting to his drug and his asthma powders

CONCLUSIONS

1 As illustrated by Case 1, it is believed that cases of bronchial asthma exhibiting evidence of secondary bronchitis with perhaps areas of atelectasis or bronchiectasis are the ones most refractory to treatment

2 If no secondary focus of infection exists in the lungs, the discovery and radical removal of foci elsewhere is likely to relieve the patient

3 If the focus responsible for the protein absorption was in the upper respiratory tract, a coryza or any other condition which occludes the nasal passages, and prevents drainage of secretions may occasion a return of asthma, since the individuals are hypersensitive to foreign proteins

4 Autogenous vaccines prepared from the sputum are of much aid in management, but are a two edged sword, and must be employed with great care, and the patient should be given to understand that treatment *will be long and perhaps uncertain*

5 Vaccines can do no good so long as some other focus of infection than that in the lungs is left unremoved by operation

6 The anaerobic fusiform bacillus has seemed to be the bacterium which exerts special influence in the production of asthma, but this is merely an impression, since only when this organism has been obtained from the sputum and incorporated in the vaccine has the administration of a vaccine been beneficial

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REFLEX RETENTION OF URINE*

ARTHUR B CECIL, A B, M D

LOS ANGELES

That the muscles of the bladder may be acted on reflexly so as to prevent the normal act of urination is a common observation This occurs particularly after gynecologic operations, and after operations on the rectum, anus, testicle and even more remote regions That the explanation of some of these retentions is not a reflex nerve action but an actual injury to the nervous mechanism, or the urethra or bladder wall is an undoubted fact

Stoeckel and Ruge,[1] in studying puerperal ischuria, almost invariably found an edematous ring about the internal sphincter Steuernagel[2] thought that some of the cases of retention of urine following labor were due to an increased bladder capacity Thus he found that while the normal bladder would hold only between 450 and 550 c c, the puerperal one could be made to contain under pressure as much as from 1,500 to 2,500 c c And Taussig,[3] in a study of the bladder function after confinement and gynecologic operations, came to the conclusion that the important features in postoperative urinary retention are interference with the blood supply of the bladder, direct or indirect pressure around the sphincter urethrae, excision of the nerve supply of the bladder, and interference with the control of the central nervous system through anesthetics, drugs or mental processes

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* Read before the Section on Genito Urinary Diseases at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June 1916

[1] Stoeckel and Ruge Zystoskopie des Gynäkologen, 1904

[2] Steuernagel Ztschr f Gynak Urol, 3, 295

All of these factors undoubtedly play a part in postoperative retentions of urine, but aside from these cases there is a group of acute retentions which are undoubtedly dependent on reflex phenomena Inasmuch as the large majority of these cases are transitory, very little attention has been given to them, and it is true that most of the cases of urinary retention demanding treatment on account of retention are undoubtedly due to a real mechanical obstruction or to a definite organic nerve disease

In looking over the literature many of the cases of obscure retention were found to give a history of syphilis It is now a well recognized fact that spinal syphilis may manifest itself in the early stages only by vesical disturbances, and it is probable that many of the formerly obscure cases of retention of urine were really early cases of cerebrospinal syphilis

Excluding all of these types of chronic retentions, however, there is still another type which I have chosen for the subject of this paper, and that is, a condition of recurrent attacks of retention with at first intervals of entire freedom from vesical disturbances which are dependent on chronic irritation acting in a reflex manner It is believed that such cases exist without the presence of mechanical obstruction in the sense of an occluding obstruction, without demonstrable nerve lesions and whose mechanism is essentially the same as is seen so commonly following surgical procedures on the nearby structures to the bladder, and that the condition is primarily not necessarily dependent on pathologic changes in the sphincter muscle of the bladder, but is excited reflexly through the spinal cord center

The experiments of Roussy and Rossi[4] have conclusively demonstrated that the center presiding over the bladder function is situated in the conus terminalis They showed that destruction of the conus terminalis resulted in complete loss of sphincter control and bladder function, and that section of the spinal cord above the conus terminalis did not destroy the bladder function, inasmuch as animals in which this had been done very quickly resumed control of the urine so that urine was retained in the bladder for definite intervals and expelled in a normal manner In the adult man this lower spinal center is presided over by the cerebral one so that the act of urination is initiated by a mental process

Retention of urine, or inability to urinate, depending on disturbances of the cerebral control of urination, are very common, and such must be the explanation of the cases of inability to urinate in the presence of another person or in one situation or another

Of these disturbances of urination dependent on the cerebral control there are perhaps many different types, some of which are of the same origin as hysteria, as manifested in other ways, a dissociation, others are only temporary inabilities to carry out the mental process to initiate the urinary act

Frankl-Hochwart[5] mentions an interesting case of the hysterical type in a woman, aged 19, whom for a year and a half it was necessary to catheterize in a hospital, on account of constant retention of urine Examination showed a completely normal condition Finally one of the attendants remarked that an operation would have to be performed, and she immediately recovered

Aldrich[6] has mentioned numerous cases of disturbances of urination dependent on derangements of the higher urinary center In one instance, a physician was never able to urinate in the presence of another person In another instance, the person could not use a public urinal One person could not urinate in a darkened room One could not urinate unless in a darkened room A child found it necessary to count in order to urinate, and so on indefinitely

It is evident that these are not retentions dependent on reflex phenomena acting through the lower urinary center These are truly cases for psychic suggestion, and it matters little whether this suggestion be carried out by local treatments in the region of the bladder or by well recognized treatments for various hysterical conditions, so long as this group of cases of retention of urine is recognized and is definitely treated as such

The conception of a reflex chronic retention of urine excited by some external irritant is by no means a new one Thus Eugene Fuller,[7] in writing on chronic contraction of the vesical neck, speaks of acute spasms of the vesical sphincter excited by pathologic states in the sexual apparatus, the rectum, etc He believes that these acute spasms might become a condition of chronic contraction as a result of some settled disorder of the sexual apparatus or adjoining structures where this reflex spasm had existed as a prominent symptom for a long period of time He found, as he believed, evidences in his cases of a preexisting reflex cause, and likened a chronic contraction of the vesical neck to a chronic torticollis

Swinburne[8] has reported cases of chronic retention of urine which he attributed to a diseased condition of the verumontanum, and thought that the cases of chronic retention which he had studied were closely associated with the cases of acute retention which one sees in acute posterior urethritis

Other cases of retention attributed to irritations in the posterior urethra have been mentioned by Rothschild,[9] Cohn[10] and others

Emodi[11] mentions the case of a man in whom the expulsion of a lumbricoid worm stopped the retention crises, and although the neurologic examination in this case was negative, it is open to question, inasmuch as this patient had previously had syphilis

Reflex spasm with the retention of urine have been attributed to congenital anomalies, phimosis, atresia of the meatus, strictures, foreign bodies, prolonged dilatation of the bladder, inflammation of the kidney (but these may be secondary to cystitis), cystitis, chronic prostatitis, chronic seminal vesiculitis, etc

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[3] Taussig Surg, Gynec. and Obst **21**, 416

[4] Roussy and Rossi Troubles de la micturition et de la defecation consecutifs aux lesions expérimentales du cone terminal ou de la queue du cheval Compt. rend, Cong internat de med Budapest (1909) 1910 Section XI, neuropatologie p 438

[5] Frankl Hochwart quoted by Cohn J Ueber nervose Retentio Urinae, Berl klin Wchnschr, 1915 **52**, 208

[6] Aldrich C J Am Med, 1903 **5** 489

[7] Fuller, Eugene Am Jour Med Sc., **104**, 440

[8] Swinburne Am Jour Urol, June, 1910

[9] Rothschild Ueber Retention ohne Localhinderniss, Cong Assn internat d urol Paris 1908 **1**, 350

[10] Cohn Footnote 5

[11] Emodi Ueber einen seltenen Fall von reflectorischer Harnverhaltung Pester med chir Presse, 1904 **40**, 1029

REPORT OF CASES

The following cases are reported as examples of reflex retention of urine

Case 1—A woman, married, aged 48, was referred to me for urologic examination by Dr William Monroe Lewis of Los Angeles, Aug 12, 1914 She complained of being unable to urinate This difficulty in urinating commenced two years previously when she would have a desire to urinate but would have to strain for some time before being able to pass urine, and a fair amount would then be passed Hot cloths were used to relieve the straining, which seemed to be at the neck of the bladder These attacks of difficulty in urinating would come off and on and then disappear This continued for fifteen months, or nine months before she was seen by me, when she had complete retention and had to be catheterized She was then able to void until three days before admission, when it was again necessary to catheterize her At the same time she noticed a fulness in the left side of the abdomen My examination showed a colon bacillus infection of the urine, a marked acute cystitis, no mechanical obstruction at the neck of the bladder, no trabeculation of the bladder, a complete duplication of the left renal pelvis and ureter, with an infected hydronephrotic sac at the caudal pole This entire left kidney mass was *removed* by Dr Lewis two days later Following the removal of this sac the patient did *not immediately regain the power to urinate*, but had to be catheterized for about two weeks, when all retention disappeared *entirely* and she has been voiding in a normal manner ever since, which has been almost two years In this case it is evident that the retention of urine was directly associated with the hydronephrotic sac, although it is difficult to say as to what part the inflammation of the bladder might have played in bringing about the retention In either case the retention was of a reflex origin

Case 2—A man, aged 40, extremely well nourished was first seen by me, July 17, 1915, complaining of spasms at the neck of the bladder, attacks of great difficulty in passing urine, and occasionally having to be catheterized When 19 years of age he had had gonorrhea complicated by a double epididymitis, and since then two attacks of urethritis at the ages of 27 and 35 years, respectively The latter two attacks of urethritis followed periods of drinking, lasted for only about ten days, and no gonococci were found in the discharge The patient denied syphilis The urinary stream, except when he had periods of retention, was of good size and force Ejaculation was somewhat premature, the sexual power otherwise was negative The present illness began about four years previous to admission, when he felt as if he wanted to void but could not until his bowels had moved at which time he voided freely At the same time he noticed that on arising in the morning he frequently had a sharp pain running from the prostate to the head of the penis This pain was relieved by urination These attacks of pain were accompanied by marked frequency of urination, but it was often necessary for him to go to stool in order to pass urine There was marked hesitancy, but after the attacks passed off the stream would be of normal size and force About four months later he had an attack of acute retention and had to be catheterized He was diagnosed at this time as having a urethral stricture and later as having contracture of the vesical neck A punch operation was done, but this did not help him The patient then took a complete rest at one of the springs, and had no bladder disturbances whatever for several months When first seen by me he had *complete retention, but the bladder was not* markedly distended He complained of violent pain at the neck of the bladder, *a spasm*, as he himself called it Hot tubs did not relieve him A catheter was somewhat difficult *to pass through the internal sphincter*, which was definitely *in a spasm* About 300 c c of urine were withdrawn It was then necessary to catheterize him three times within the next twenty-four hours, although there were urinations in which he passed urine with perfect freedom The urine was negative

Briefly, then, the history of this case is one of attacks of complete retention occurring *in a healthy man*, aged 40, associated with spasmodic pain at the neck of the bladder, radiating to the head of the penis In the intervals between the spasmodic attacks of pain, urination would be perfectly normal, and there would be months of entire freedom from any vesical disturbances Following hard mental work, a sudden complete, spasmodic, painful retention would occur The Wassermann test of both the blood and spinal fluid was negative Roentgenoscopy of the vertebral column was negative Neurologic examination by a competent neurologist was negative Urologic findings showed prostate of normal size with slight induration of both lobes The prostate was not enlarged, nor was it smaller than normal when examined by rectum The right seminal vesicle was indurated and adherent externally The left seminal vesicle was also indurated There was a perivesicular induration and an induration extending between the two seminal vesicles The prostatic secretion showed 10 per cent pus On cystoscopic examination the patient having complete retention, the bladder capacity was difficult to determine The bladder wall was not trabeculated The trigon seemed hypertrophied, the posterior margin quite prominent There was a slight elevation of the posterior portion of the internal urethral orifice, and a slight rounding of this orifice anteriorly

The question arose in this as to the possibility of a contracture of the vesical neck *The history is against this* He had not progressively grown worse, in fact, for *six months previous to the time when I saw him, he had not* had any frequency of urination or any difficulty whatever *in passing urine* There would be *months of entire free*dom from any vesical disturbances, and then following hard work, or *things which tended to make him run down, he* would have attacks of violent spasm at the neck of the bladder with acute retention The very next urination would *at times* be perfectly normal The spasm of the internal sphincter *was so great as to interfere* with catheterization The very violence of the attacks of retention is against a long standing constantly acting mechanical obstruction It is believed that this is a case not dependent on any definite organic obstruction but on a spasm of the internal sphincter muscle probably reflexly excited by a seminal vesiculitis

Case 3—A man, aged 28, married for six years, was first seen by me, March 31, 1915 He complained of periods in which he was unable to urinate, and at these times it was necessary for him to use a catheter Until the age of 20 he was a healthy man, did not have to get up at night to urinate, and had no difficulty in passing urine About eight years before admission he started getting up at night to urinate, about once, early in the morning He was married two years later, and about a year after marriage he commenced to notice burning on urination Four years before admission he was taken with complete retention and had to be catheterized He would then have periods in which he would urinate in a normal manner and others in which it would be necessary for him to catheterize himself In July, 1912, he was studied by a urologist, and in 1913, a suprapubic cystotomy was done Apparently nothing was found The bladder was sewed up and quickly healed For four months then he got along very well, voiding urine without catheterization He then commenced to have spasmodic pain on voiding He was again studied and told that the *verumontanum* was greatly enlarged This was cauterized with some relief from pain, which seemed to be *in that region*, but during 1914 it was occasionally necessary for him to catheterize himself, on *account of retention of urine For three weeks previous to* admission he used a catheter practically every time the *bladder felt full* The *history of this catheterization is rather* peculiar At times it was only necessary to pass a catheter a very short distance into the urethra, when he was able to urinate, at others it was necessary to pass the catheter all the way into the bladder, but not necessary to leave it there, for the catheter could sometimes be withdrawn and he would continue to empty the bladder through the urethra with a large size stream

The course of events in his retention he described as follows On attempting to urinate, an intense burning at the neck of the bladder occurred, and the muscle then seemed to go into a spasm and shut off the urine At times some would be passed, and then the bladder seemed to shut off with a grating sensation, and he was unable to relax it There was no history of syphilis He denied gonorrhea Examination showed a fairly well nourished young man, with normal reflexes The Wassermann test of the blood and spinal fluid was negative Roentgenoscopy of the vertebral column was negative Rectal examination revealed a prostate of about normal size The prostate showed marked induration along the left outer border, and slight induration of the right lobe The left seminal vesicle was greatly indurated, and stood out like the finger of a glove The right seminal vesicle was thickened, but not as much so as the left The prostatic secretion showed 50 per cent white blood cells In spite of the numerous times which the patient had catheterized himself, the urine was not infected and was otherwise negative Just before cystoscopic examination was done the patient had catheterized himself, and when cystoscopy was performed, 50 c c of urine were found in the bladder The bladder capacity was 160 c c The bladder wall was not trabeculated, but the interureteric band was greatly hypertrophied and stood up as a ridge across the bladder As the cystoscope was withdrawn into the urethra, no posterior bar was seen, and all of the prostatic views were concave Anteriorly the scar of the operation spoken of above was seen The urethra was very carefully studied with an endoscope with negative findings This patient was treated by prostatic massage and massage of the seminal vesicles Following this treatment extending over a period of three months he was able to dispense with his catheter improved greatly in general health and the spasms at the neck of the bladder ceased It is thought that this case is an example of a spasmodic retention of urine depending on inflammation of the seminal vesicles It was cured by attention being given to these diseased organs

MECHANISM OF RETENTION

What is the mechanism of reflex retention of urine? Is it an inhibition of the detrusor muscle of the bladder, is it a spasm of the sphincter muscles of the bladder, or is it an inability to inhibit the normally contracted sphincter muscle?

In regard to the first possibility, an inhibition of the detrusor muscle of the bladder, Albarran and Nogues[12] have regarded this as the most likely possibility in functional retention of urine extending over a long period of time While they did not doubt the occurrence of spasms of the muscles occasionally being responsible for the retention of urine, they regarded it as rather unusual To quote from them

> We think that the sphincter troubles capable to determine prolonged retention of urine are especially produced when the normal faculty of inhibition, reflex or voluntary, is lost We also think that most often these disturbances of inhibition have not to do with the sphincter apparatus for their exclusive seat, but that they act also on the contractibility of the bladder

In this connection the various theories as to the mechanism of cardiospasm are of interest In this condition there can be no question as to the absence of organic obstruction, and yet the obstruction is most complete

Morrell Mackenzie[13] believed that it was due to the general weakness of musculature of the esophagus Mikulicz[14] believed that the spasm of the cardia was responsible for it, and Hertz[15] and Rolleston,[16] from the fact that the muscle at the cardiac orifice is practically never found to be hypertrophied, regarded the condition as due to the inability to relax or inhibit the normally contracted cardiac orifice—an acalasia

Hertz,[17] however, found one case in which there was a definite spasm at the cardiac sphincter and Mathieu and Roux[18] described a case in which it was impossible to withdraw an esophageal sound until the patient had been anesthetized with chloroform, so that it will be seen that the same views are held in connection with cardiospasm as have been held responsible for functional retention of urine That the functional retention of urine is not due to an inhibition of the detrusor muscle, as was supposed by Albarran, would seem to be true in the cases which I have cited When the catheter was passed into the bladder, urine was forced out with considerable force Moreover, the retention of urine was quite painful and was spasmodic The condition is not due to a spasm of the external sphincter muscle, nor is this muscle necessarily associated with the retention

The work of Volcker and Lichtenberg,[19] Leedham-Green,[20] Barringer and MacKee,[21] and Uhl and MacKinney[22] has conclusively demonstrated that urine is retained in the bladder under normal conditions by the internal sphincter muscle It is commonly supposed that the external sphincter muscle works constantly in unison with the internal sphincter muscle, which is by no means the case Ejaculation may take place with the bladder full of urine without urine escaping, in which case it is evident that the internal sphincter muscle must be contracted and the external sphincter muscle relaxed If the prostate be massaged with the bladder full of urine, prostatic secretion can be expressed from the urethra without urine escaping

In the cases of spasmodic retention of urine cited above, it was definitely determined that the retention took place at the internal sphincter muscle As to the two remaining possibilities, as to whether this type of retention is due to a spasmodic condition of the internal sphincter or an inability to inhibit a normally contracted muscle, it would seem that both of these conditions might be a possibility, but in the cases which I have observed, some urine would usually be passed, when the muscle would seem to be thrown into a spasm

TREATMENT

In regard to the treatment of this condition, an attempt should be made to find the exciting cause In Case 1, the removal of the hydronephrotic sac resulted in a cure of the disturbances of the normal mechanism of urination which had extended over a period of almost two years In Case 3, massage of the seminal vesicles resulted in a cure, whereas a catheter had been necessary for most of the time over a period of four years It is a question as to whether this condition could become a settled one and produce permanent changes in the sphincter muscle such as Fuller has described If this occurs, it is probable that section or division of the internal sphincter muscle would be required for relief of the condition, and in the persistent cases this method of treatment would possibly be advisable

This condition must be differentiated from contracture of the vesical neck due to fibrous tissue changes

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[12] Albarran J and Nogues P Retentions d'urine sans obstacle mécanique et en dehors des affections du systeme nerveux Cong Assn internat d urol Paris 1908, **1** 299

[13] Mackenzie, Morrell Diseases of the Throat and Nose London 1884 **2** 115

[14] Mikulicz Deutsch med Wchnschr, 1904 **30**, 17, 50

[15] Hertz Quart Jour Med, **8** 302

[16] Rolleston H D Tr Path Soc London 1896 **47**, 37

[17] Hertz Quart Jour Med, **8** 300

[18] Mathieu, A and Roux J C *Pathologie gastro intestinale* 1909, **1**, 78

[19] Volcker and Lichtenberg Die Gestalt der menschlichen Harnblase im Rontgenbilde Munchen med Wchnschr 1905, Cystographie und Pyelographie, Beitr z klin Chir 1906 1907 **52**

[20] Leedham Green Brit Med Jour 1906 **2** 297

[21] Barringer and MacKee Radiographs of the Bladder and Bladder Neck Tr Am Urol Assn 1912 *p* 408

[22] Uhl and MacKinney Observations upon the Mechanism of Urination Urol and Cutan Rev (Tech Sup) July 1913

OBSERVATIONS ON CERTAIN OBSTRUCTIONS AT THE VESICAL ORIFICE *

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NEW YORK

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In urology as in other fields of medical science the progressive surgeon is alert to discover early pathologic conditions in order that relief may be prompt and effective, thereby eliminating much suffering and repairing damaging conditions

In this discussion it seems advisable to consider vesical orifice obstructions other than those caused by enlargement of the prostate gland proper which is believed to be a subject apart

The older writers recognized several types of vesical orifice obstructions Sir E Home[1] described what we now know to be hypertrophy of the subcervical group of Albarran as the normal middle lobe of the prostate His view was much and justly criticized by his contemporaries, and in fact the condition was correctly described by writers much before his time Morgagni[2] in 1761 referred to this condition as a morbid growth causing retention of urine He considered it to be of the same nature as the prostate gland and contiguous with it Valsalva, Pohlius, Santorini,[3] Thomas Bartholin of Padua, and Valisneri described similar growths, and were quoted by Morgagni and Bonetus[4] as early as 1700 to the effect that excrescences grew out in the very middle of the internal and upper circumference of the gland, posteriorly, in some old men Lieutaud, a contemporary of Morgagni, considered an eminence at the neck of the bladder to be not a morbid growth, but a small part quite natural and common to all bodies He called it the "uvula vesicae" John Hunter[5] agreed with the opinion of Lieutaud J Cruveilhier[6] and Langenbeck considered a protuberance in this region to be pathologic and that there was no definite middle lobe but a middle portion

Valpeau[7] mentioned fibrous prostatic tumors, "which develop in the direction of the vesical cavity, which become absolutely pedunculated precisely as do the fibrous polypi of the uterus, and become enveloped by the vesical mucous membrane" Rokitansky[8] considered such tumors and their relation to the prostate to be analogous to tumors of the thyroid gland and outlying formations similar in structure to it Sir J Paget[9] agreed with this view, as did also Sir W Fergusson,[10] Mr Shaw[11] and Sir Henry Thompson[12]

Mr J G Guthrie in 1830 lectured on prostatic and nonprostatic obstructions at the vesical orifice He concluded that (1) an elastic structure exists at the neck of the bladder and may be diseased without any necessary connection with the prostate gland, (2) the prostate gland may be diseased without any necessary connection with the elastic structure Mr Guthrie first used the term "bar at the neck of the bladder," and distinguished between it and the obstruction caused by the large median portion of the prostate proper Civiale[13] describes the "vesico-urethral barrier" as formed in some cases by "a simple fold of membrane, smooth and thin, and almost transparent, extending from one lobe of the prostate to the opposite" and others by fold, thicker, in the form of a rounded cord which contains some fibrous or muscular tissue He also mentions that obstruction in the region of the vesical orifice may be due to spasmodic muscular contractions, rheumatism, etc Mercier[14] does not entirely agree with the views of Guthrie, but describes a "semiannular eminence" He recognizes two distinct kinds, one produced by repeated spasm of the muscular fibers which close the neck of the bladder, becoming a permanent bar, the other a result of hypertrophy of the median portion of the prostate

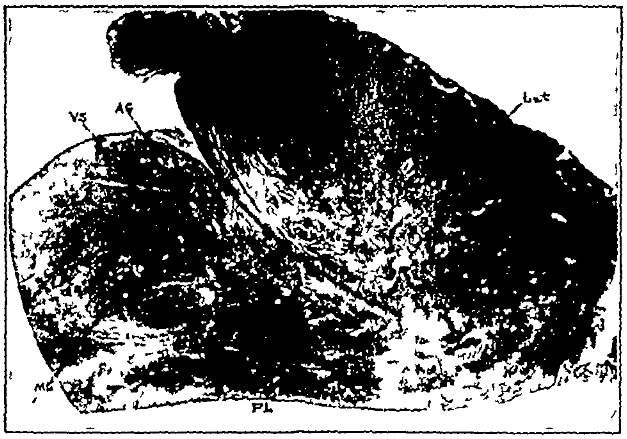

Fig 1—Oblique section through the prostate and trigonal region of a man aged 76 *Ur* urethra *AG* subcervical gland tubules *VS* vesical sphincter *ML* middle lobe tubules *EJD* ejaculatory ducts and muscular envelope *PL* posterior lobe tubules *Lat* lateral lobe tubules

Sir Charles Bell[15] believed that hypertrophy of the middle lobe was caused by the pull exerted on it by the muscle bands of the trigonum vesicae in irritative conditions of the bladder The work of G V Ellis[16] on the anatomy of this region proved that the muscles of the trigon are attached to the longitudinal muscular coat of the urethra and hence do not react in the manner described by Bell

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[2] Morgagni J B De Sedibus et causis Morberum per Anatomen Indagatis Venice 1761 Letter 41 Article 18

[3] Santorini G D Observations Anatomical Venice 1724 Chap 10, p 201

[4] Bonetus Theophilus The Sepulchretum sive anatomia Practica Lyons 1700 Book III Sections 24 and 25

[5] Hunter, John A Treatise on the Venereal Disease Ed 2 London 1788

[6] Cruveilhier Anatomie pathologique du corps humain Book 17 p 3 Paris, 1835 Traite d anatomie pathology generale **3**, 46 Paris 1856

[7] Valpeau Leçons orales de clinique chirurgie Paris, 1841 p 478

[8] Rokitansky, Carl Zur Anatomie des Kepfes Vienna 1849 p 10

[9] Paget Sir James Lectures on Surgical Pathology London 1853, **2** 8

[10] Fergusson Proc Path Soc London Feb 19 1849 p 83

[11] Shaw Proc Path Soc London May 7 1849, p 83

[12] Thompson Tr Path Soc 1855 **7**, 254

[13] Civiale Traite pratique **2**, 244

[14] Mercier Recherches sur le traitement des maladies des organes urinaires Paris 1856

[15] Bell An Account of the Muscles of the Ureters and Their Effects in Irritable States of the Bladder Tr Med and Chir Soc 1812 **3**

[16] Ellis An Account of the Arrangement of the Muscular Substance in the Urinary and Certain of the Generative Organs of the Body Med Chir Tr **39**, *327*

Albarran[17] describes in detail a group of glands at the vesical orifice which open into the urethra and whose tubules lie between the mucosa and the musculature He calls this the subcervical glandular group and states that it varies greatly in different individuals and may be entirely lacking in some Cuthbert S Wallace[18] states that in a certain number of cases while circular muscle fiber is still well marked and forming a very definite barrier between the gland tissue behind and the urethra in front, there can be seen lying close under the mucous membrane prostatic glandular alveoli which may give rise to the small adenomatous tumors situated just within the internal meatus in some cases

Dittel[19] maintains that the hypertrophic middle lobe does not project behind the sphincter into the lumen of the bladder, but originates from the "portia intermedia" in front of the sphincter and encroaches during the growth between the mucous membrane of the urethra and posterior half ring of the sphincter, by which procedure the sphincter comes to lie behind as a tumor functionating like a valve Jores states that valvelike tumors of the orifice take their origin not from the prostate gland itself, but from the glandular tissue, which is already normally present, "in most individuals above the colliculus seminalis" just below the mucous membrane of the urethra and orificium, respectively, at any rate, in front of the sphincter Ciechanowski[20] agrees with the view expressed by Jores

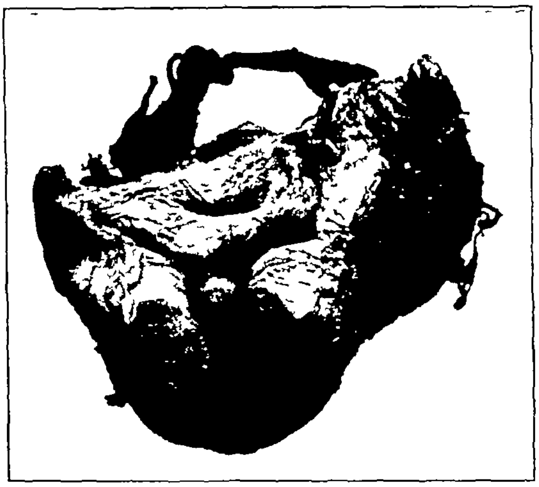

Fig 2—Moderate unilobular hypertrophy of subcervical group with a raised contracted trigonum vesicae and a moderately deep bas fond Bladder shows signs of obstruction

Anatomic conditions at the vesical orifice have been extensively studied by the author[21] The small group of subcervical tubules which seem to have attracted so many writers has proved to be most interesting These tubules begin to develop at the fourth intra-uterine month and are found in every specimen older than that They are not particularly numerous up to the time of birth, as there are never more than eleven After birth they increase greatly so that in one specimen there are as many as forty-three The average number for all specimens is twenty-five Structurally they differ from prostatic tubules in a number of important details There is not a differentiated layer of muscular and connective tissue fibers around them, although in disease the fibrous tissue develops an encircling sheath in many instances The mucosa is composed of two or three layers of low columnar or cuboidal epithelial cells, chiefly the latter, placed on a feltlike basement membrane The nuclei are usually in the center of these cells and almost never occur near their bases as they do in the cylindric cells of prostatic mucosa Many of these nuclei are oval in contour The lumina are small and usually circular or oval in shape and rarely have an irregular outline with fingerlike projections as do the prostatic tubules These tubules in an adult resemble the tubules of an embryonic prostate gland to a considerable degree

The subcervical group of tubules located, as its name signifies, at the vesical orifice, chiefly in the mucosa of its floor, is subjected to many influences which tend to make the occurrence of pathologic conditions rather frequent In fact, a careful study of some 350 prostates collected from routine necropsies shows an enlargement of this group in about 25 per cent of patients over 30 years of age In practically all cases of adenomatous hypertrophy of the prostate there is an accompanying enlargement of the subcervical group of considerable degree Therefore it is assumed that the same factor which causes an adenomatous hypertrophy of the prostate also stimulates an overgrowth of the subcervical group of tubules, and furthermore it is believed that the latter structure responds to this stimulating influence before the prostate itself does

The enlargement of the subcervical group of tubules occurs in several forms The most frequent is the small single tumor which occurs in the midline at the vesical orifice and usually projects through the internal meatus into the bladder This structure was observed by the older writers and apparently occurred with great frequency in 1700, as it was described at that time by the venerable French writer Lieutaud, who considered it a normal structure and called it the "uvula vesicae" Next in frequency of occurrence are the medium sized single tumors Very many cases of extensive adenomatous hypertrophy of the prostate are accompanied by an intravesical intrusion of the subcervical group of tubules, and this tumor is frequently mistaken for an enlargement of the middle lobe which is, as a matter of fact, usually adenomatous in type but rarely protrudes into the bladder, although it often lifts the lower portion of the trigonum vesicae In almost every instance careful examination of the adenomatous prostate removed intact shows a groove where the vesical sphincter has compressed the enlarged subcervical group which projects into the bladder, and which is removed with the prostate in the suprapubic operation

In addition to the single tumors of various sizes there are a number of enlargements of this group which are partially divided This division seems to be caused by a rather strong development of the bundles of muscle and connective tissue which extend from each ureter to the musculature of the posterior urethra, the so-called "Bell's muscles" These structures in some instances are more unyielding than in others, and hence cause a lack of development at their strongest points, thus dividing partially or completely the group into several parts, usually three Sometimes the division is so complete that the entire

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[17] Albarran Maladies de la prostate 1902 p 526

[18] Wallace Cuthbert S Prostatic Enlargement London 1907 p 20

[19] Dittel Beitrage zur Lehre der Hypertrophie der Prostata Wien med Jahrb 1867 p 142

[20] Ciechanowski Anatomical Researches on the So Called Prostatic Hypertrophy (translated by Dr Robert H Greene) 1903 p 79

[21] Lowsley O S Am Jour Anat 1912 3 No 3 The Human Prostate Gland at Birth The Journal A M A Jan 11 1913 p 110

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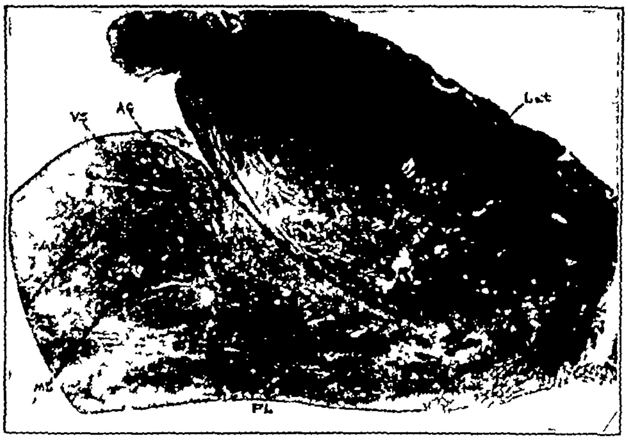

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[12] Thompson Tr Path Soc 1855 7, 254

[13] Civiale Traite pratique 2, 244

[14] Mercier Recherches sur le traitement des maladies des organes urinaires Paris 1856

[15] Bell An Account of the Muscles of the Ureters and Their Effects in Irritable States of the Bladder, Tr Med and Chir Soc 1812 3

[16] Ellis An Account of the Arrangement of the Muscular Substance in the Urinary and Certain of the Generative Organs of the Body Med Chir Tr 39, 327

Albarran[17] describes in detail a group of glands at the vesical orifice which open into the urethra and whose tubules lie between the mucosa and the musculature He calls this the subcervical glandular group and states that it varies greatly in different individuals and may be entirely lacking in some Cuthbert S Wallace[18] states that in a certain number of cases while circular muscle fiber is still well marked and forming a very definite barrier between the gland tissue behind and the urethra in front, there can be seen lying close under the mucous membrane prostatic glandular alveoli which may give rise to the small adenomatous tumors situated just within the internal meatus in some cases

Dittel[19] maintains that the hypertrophic middle lobe does not project behind the sphincter into the lumen of the bladder, but originates from the "portia intermedia" in front of the sphincter and encroaches during the growth between the mucous membrane of the urethra and posterior half ring of the sphincter, by which procedure the sphincter comes to lie behind as a tumor functionating like a valve Jores states that valvelike tumors of the orifice take their origin not from the prostate gland itself, but from the glandular tissue, which is already normally present, "in most individuals above the colliculus seminalis" just below the mucous membrane of the urethra and orificium, respectively, at any rate, in front of the sphincter Ciechanowski[20] agrees with the view expressed by Jores

Anatomic conditions at the vesical orifice have been extensively studied by the author[21] The small group of subcervical tubules which seem to have attracted so many writers has proved to be most interesting These tubules begin to develop at the fourth intra-uterine month and are found in every specimen older than that They are not particularly numerous up to the time of birth, as there are never more than eleven After birth they increase greatly so that in one specimen there are as many as forty-three The average number for all specimens is twenty-five Structurally they differ from prostatic tubules in a number of important details There is not a differentiated layer of muscular and connective tissue fibers around them, although in disease the fibrous tissue develops an encircling sheath in many instances The mucosa is composed of two or three layers of low columnar or cuboidal epithelial cells, chiefly the latter, placed on a feltlike basement membrane The nuclei are usually in the center of these cells and almost never occur near their bases as they do in the cylindric cells of prostatic mucosa Many of these nuclei are oval in contour The lumina are small and usually circular or oval in shape and rarely have an irregular outline with fingerlike projections as do the prostatic tubules These tubules in an adult resemble the tubules of an embryonic prostate gland to a considerable degree

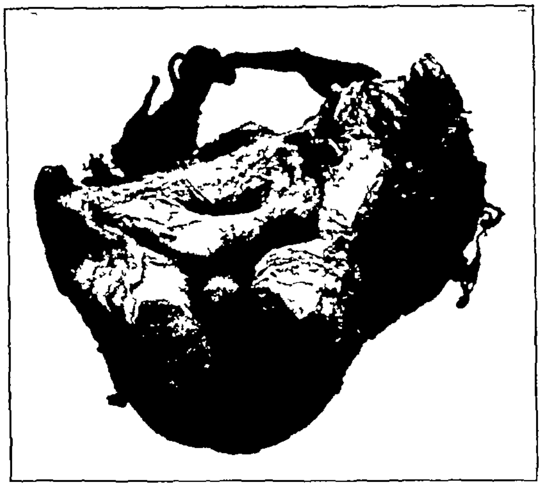

Fig 2—Moderate unilobular hypertrophy of subcervical group with a raised contracted trigonum vesicae and a moderately deep bas fond Bladder shows signs of obstruction

The subcervical group of tubules located, as its name signifies, at the vesical orifice, chiefly in the mucosa of its floor, is subjected to many influences which tend to make the occurrence of pathologic conditions rather frequent In fact, a careful study of some 350 prostates collected from routine necropsies shows an enlargement of this group in about 25 per cent of patients over 30 years of age In practically all cases of adenomatous hypertrophy of the prostate there is an accompanying enlargement of the subcervical group of considerable degree Therefore it is assumed that the same factor which causes an adenomatous hypertrophy of the prostate also stimulates an overgrowth of the subcervical group of tubules, and furthermore it is believed that the latter structure responds to this stimulating influence before the prostate itself does

The enlargement of the subcervical group of tubules occurs in several forms The most frequent is the small single tumor which occurs in the midline at the vesical orifice and usually projects through the internal meatus into the bladder This structure was observed by the older writers and apparently occurred with great frequency in 1700, as it was described at that time by the venerable French writer Lieutaud, who considered it a normal structure and called it the "uvula vesicae" Next in frequency of occurrence are the medium sized single tumors Very many cases of extensive adenomatous hypertrophy of the prostate are accompanied by an intravesical intrusion of the subcervical group of tubules, and this tumor is frequently mistaken for an enlargement of the middle lobe which is, as a matter of fact, usually adenomatous in type but rarely protrudes into the bladder, although it often lifts the lower portion of the trigonum vesicae In almost every instance careful examination of the adenomatous prostate removed intact shows a groove where the vesical sphincter has compressed the enlarged subcervical group which projects into the bladder, and which is removed with the prostate in the suprapubic operation

In addition to the single tumors of various sizes there are a number of enlargements of this group which are partially divided This division seems to be caused by a rather strong development of the bundles of muscle and connective tissue which extend from each ureter to the musculature of the posterior urethra, the so-called "Bell's muscles" These structures in some instances are more unyielding than in others, and hence cause a lack of development at their strongest points, thus dividing partially or completely the group into several parts, usually three Sometimes the division is so complete that the entire group is composed of three practically pedunculated masses which just exactly fit in the vesical orifice, and on attempted urination are forced into the internal meatus, entirely closing it.

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[17] Albarran Maladies de la prostate 1902 p 526
[18] Wallace Cuthbert S Prostatic Enlargement London 1907 p 20
[19] Dittel Beitrage zur Lehre der Hypertrophie der Prostata Wien med Jahrb 1867 p 142
[20] Ciechanowski Anatomical Researches on the So Called Prostatic Hypertrophy (translated by Dr Robert H Greene) 1903 p 79
[21] Lowsley O S Am Jour Anat 1912 3 No 3 The Human Prostate Gland at Birth The Journal A M A Jan 11 1913 p 110

One other type of subcervical tumor occurs, namely, the horseshoe shaped tumor. This type is generally fairly large and usually encompasses the lower half of the circumference of the internal meatus. Obstruction to urination occurs in this type, and may be complete, but is ordinarily partial. The act of micturition in this instance may be and usually is accompanied by considerable pain. In one interesting case in my practice the patient had been operated on for an adenomatous prostate by Young's perineal method, after which his complete retention became partial, there being 12 ounces of residual urine after his micturition, which occurred as a very painful dribbling. Cystoscopic examination showed a horseshoe shaped enlargement of the subcervical group of tubules which was a little more extensive on the left than on the right. The tumor was removed by Young's punch with thorough relief of pain, a good strong stream of urine and less than 1 ounce of residual urine.

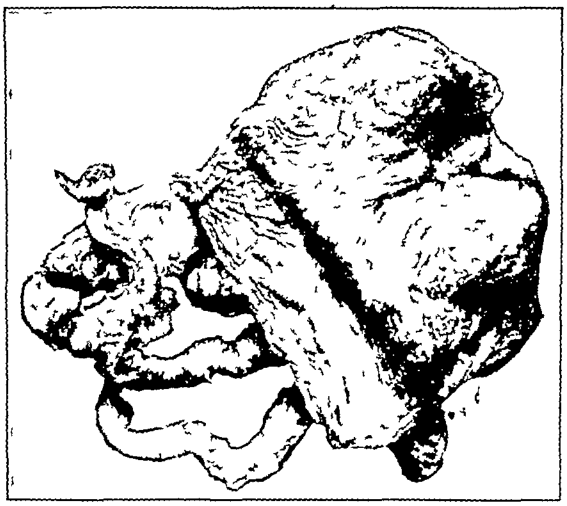

Fig. 3.—Enlargement of subcervical group in the shape of a very thick letter U extending from the upper end of the verumontanum within the sphincter and into the bladder which shows signs of obstruction.

Hypertrophic changes in the trigonal musculature come next in frequency as a cause of the obstruction at the vesical orifice to urinary outflow. In a series of cases recently reported, seventeen cases with sufficient hypertrophy to cause considerable obstruction to urinary outflow were found which made up 7.6 per cent. of the entire number observed. This condition almost never occurs before the fortieth year. It is accompanied by a very deep posttrigonal pouch or bas fond.

The subtrigonal group of tubules which is found in all specimens between the middle of the trigonum vesicae and the vesical orifice is frequently the seat of pathologic change. The most frequent lesion is ulceration, but sometimes there are found tumors which are a source of obstruction. These tumors are of three kinds. The most common is the low mound shaped mass which sometimes does and again does not cause obstruction. Rarely if ever does this type not cause complete retention. Next in frequency is the pedunculated mass which is an outgrowth from this group of tubules, and, situated as it is just above the vesical orifice, often acts as a ball valve and may cause complete retention of urine. Dr. Hugh H. Young of Baltimore reports several such cases, and I have observed a number of others through the cystoscope. Villous papillomas occur in this region occasionally and may even be found just at the vesical orifice, as Joseph F. McCarthy has observed.

Fibrous stricture of the vesical orifice is not an infrequent source of obstruction to urinary outflow. This is usually a result of chronic inflammatory process, but may follow operative procedure in this region.

A specimen showing marked stricture of the vesical orifice was sectioned and cut both longitudinally and laterally and stained according to van Gieson's method and also with hematoxylin and eosin. A brief description follows. The mucosa of the apex of the trigonum and the vesical orifice is composed of several layers of epithelial cells transitional in type. The smooth muscle bundles of the trigonum vesicae are well shown as fine fibrils superimposed on the rather coarser bundles forming the vesical wall proper. At the apex of the trigon these muscle bundles seem to be firmly and closely matted together. Numerous blood vessels of moderate size are found throughout this region. They are, in fact, much more numerous here than at any other portion of the structure. Proliferation of the connective tissue cells has taken place, and there is marked small round cell infiltration. This increase in fibrous tissue is most marked in the layer which is continuous with the trigonum vesicae and above and toward the bladder lumen from the subcervical group of tubules. Extending downward from the trigonal region at several points are observed quite marked bundles of tissue which insinuate themselves between the fibers composing the wall of the bladder proper, and these serve to bind the two structures together quite firmly. The subcervical tubules of Albarran are considerably atrophied in appearance. The mucous membrane lining the tubules is composed of cuboidal shaped cells, usually one layer in thickness placed on a feltwork base. There is considerable infiltration of small round cells in the region of these tubules and also about the muscle bundles of the sphincter which lie just beneath them. The entire picture gives one the impression of fibrosis due to long continued low grade inflammation.

Cysts at the vesical orifice are occasionally met with, and in some instances are the cause of grave obstruction. They usually occur just within the vesical sphincter and probably arise from the subcervical tubules. Rarely, however, they may spring from the subtrigonal group. One which occurred in my series gave rise to very marked obstruction with retention of urine and trabeculation of the fundus of the bladder.

DIAGNOSIS

The diagnosis of the above conditions is based on the following findings. There is often a certain amount of pain, even in the earlier stages. Sometimes it becomes exceedingly acute and in other instances may be merely a feeling of uneasiness when the bladder becomes full or is being emptied. Very often the patient has a feeling that he is not able to completely empty his bladder. In the worst cases the symptoms may resemble those of the prostatic. There is always residual urine. Often in early cases this will not exceed an ounce. In a case of moderate degree it usually amounts to 4 or 5 ounces, and in the more advanced cases complete retention results.

The passage of bougies and sounds reveals to the careful manipulator the fact that stricture is not the cause of the patient's trouble, and just as the instrument passes into the bladder the sense of riding over an obstructive mass at the vesical orifice is transmitted. Catheterization reveals the amount of residual urine.

On rectal examination the prostate will usually be found to show evidence of chronic irritation It frequently is indurated and nodular, and usually there are numerous bandlike adhesions extending from the lateral surfaces and between the base and the seminal vesicles These vary in their firmness The most important thing to be learned from the examination of the prostate in these cases is that it does not show marked enlargement With an instrument in the urethra and the finger in the rectum changes of the collarlike vesical sphincter are readily appreciated

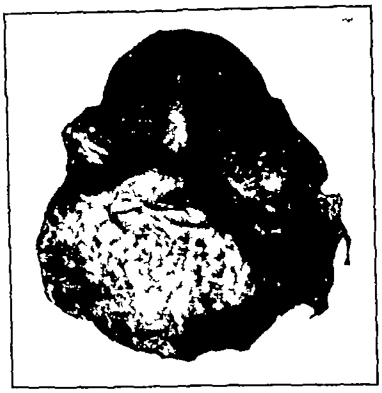

Fig 4—Trilobe enlargement of subcervical group with marked signs of obstruction

Cystoscopic examination, preferably with the McCarthy straight instrument or the Buerger urethroscope, is the most important examination to be made in arriving at a diagnosis in these cases There is usually hypertrophy of the musculature of the bladder wall so that trabeculation in the fundus is quite marked, cellules occurring frequently, sometimes being quite deep

The trigonum vesicae is in most instances somewhat hypertrophied, particularly in the interureteric region, thus forming a rather deep posttrigonal pouch The ureteral orifices are situated on quite marked ridges owing to the trigonal hypertrophy and are not necessarily changed, although they may be dilated from back pressure in aggravated cases

The vesical orifice is of course the most interesting part of the picture Tumor masses arising from the subtrigonal group are easily recognized, as are those which originate from the subcervical tubules It is sometimes necessary in the case of the latter to depress the eyepiece of the cystoscope considerably in order to throw the vesical orifice into the field more satisfactorily Very early tumors on the floor of the internal meatus are recognized by the change from the normal concave border to a convex mass which projects itself into the field Multiple, cystic, pedunculated and horeshoe shaped tumors are distinguished by careful observation

Fibrous strictures of the vesical orifice present slightly greater difficulties in the matter of diagnosis Often in these cases there may be some slight difficulty in introducing the instrument, and frequently there is considerable pain The vesical orifice presents concave borders over its entire circumference Observation of the apex of the trigonum vesicae shows a very steep proclivity, so that if it is to be observed closely the eyepiece of the instrument must be very much elevated Also in observing that portion of the urethra between the vesical orifice and the upper end of the verumontanum a marked declivity is noted and the eyepiece of the instrument must be considerably lowered

An early diagnosis of these interesting conditions at the vesical orifice is extremely important, just as is an early diagnosis in tuberculosis, carcinoma or any other serious condition Although obstruction to urination is not such an emergency affair as appendicitis, it is most important that immediate measures be adopted to relieve the obstruction The harmful results of residual urine with the possibility of back pressure in ureters and kidneys, of easy infection, the formation of stone, etc, are too well known to require a lengthy description in this article

TREATMENT

In very early cases of enlargement of the subcervical group of tubules there are usually few if any symptoms As the condition becomes more aggravated there may develop a burning pain on micturition, a disturbance in the force and character of the stream, and a sense of fulness in the perineum and various referred pains down the insides of the thigh, in the small of the back, etc The patient may also have a sensation that he is not completely emptying the bladder Catheterization shows a small amount of residual urine In very early cases only 20 or 30 c c may remain after micturition

In these early cases the administration of hexamethylenamin with acid sodium phosphate or sodium benzoate will render the urine antiseptic, and as there is usually a considerable amount of inflammatory tissue in and around these tumors, the burning and referred pains are frequently relieved by instillations of arygrol, or weak solutions of silver nitrate The passage of sounds with occasional massage of the regions of the vesical orifice by rectum on the collarlike mass which is felt with the sound in place will sometimes give relief These and various other palliative measures give temporary relief, but as the fundamental cause of the symptoms is the hypertrophy of the subcervical group and not the inflammation accompanying it, in the end the symptoms become more pronounced and recur as the tumor enlarges

Occupying, as these tumors do, an extremely strategic position within the sphincter on the floor of the vesical orifice, it is found that as the size increases the obstruction with accompanying evils likewise increases markedly, and steps for removal should be taken

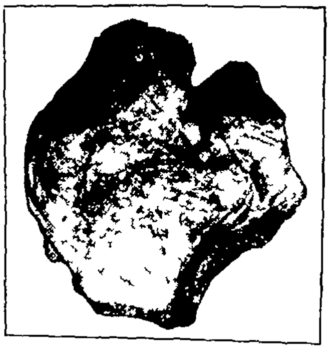

Fig 5—Hypertrophy of subcervical group in three distinct portions which practically block the urethra

A great many procedures have been recommended I have found that Young's punch operation is decidedly the best method employed in removing these intrasphincteric masses, be they small, large, unilobular, or trilobular The instrument is introduced so that the fenestrum is in the posterior urethra The obturator is withdrawn and the instrument inserted still further until the tumor at the vesical orifice rises into the fenestrum, completely filling it The cutting inner tube is then introduced and quickly pushed into position, punching out the entire portion of the tumor in the fenestrum The instrument is then turned obliquely to the right and then to the left, where the same procedure is repeated The instrument is then withdrawn and a catheter with a large fenestrum introduced It is wise to keep a small amount of fluid in the bladder continually, but the former practice of keeping up continuous irrigations has been given up as it seems to delay the clotting of the blood at the cut surfaces and hence delays the healing As a rule the bleeding stops after a few hours, and the catheter can often be removed after twenty-four or thirty-six hours

An enlargement of the subcervical group is of such frequent occurrence that digital examination should always be made when a patient is operated on for enlargement of the prostate by the perineal route

This particular case typifies many others that have come under my observation, and teaches that no prostatectomy is well done unless one searches for a subcervical glandular enlargement at the time of operation

The suprapubic prostatectomy as practiced by Squier will remove the subcervical group of glands in the natural course of the operation

The same influences which cause the subcervical gland to enlarge apparently cause prostatic hypertrophy later on, so the punch operation may be followed years after by a prostatectomy It seems advisable however, to do this operation in every case which presents symptoms and has any considerable amount of residual urine

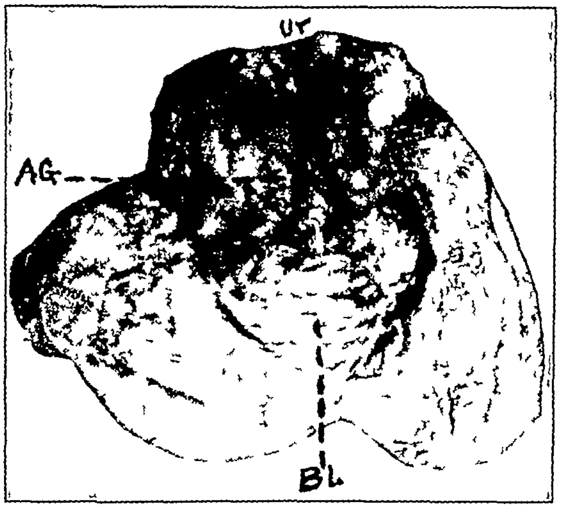

Fig 6 —Specimen showing marked hypertrophy of subcervical group in three distinct portions which are very large and almost completely block the urethra *BL*, fundus of bladder showing marked signs of obstruction *AG* subcervical glands divided into three portions *UR* urethra at apex of prostate

These tumors have been treated by Stevens and others by the high frequency current with splendid results in some instances When treated in this manner the patients should be kept under close observation for several days as the procedure is sometimes followed in three or four days by terrific hemorrhage due to separation of a slough As pointed out by McCarthy, occasionally application of the high frequency current has been followed by severe infection Chetwood's[22] modification of Bottini's[23] operation is also preferred by some operators The reason why the Young's punch operation seems to be the one of choice in this condition is that the entire tumor is removed at one time without injury to the internal sphincter and without requiring the use of a general anesthetic

Hypertrophic changes in the musculature of the trigonum vesicae, as it passes over the floor of the vesical orifice, is best treated by Young's punch operation or Chetwood's electrocautery procedure The high frequency current is of very doubtful benefit, as the resulting scar would be nearly as hard to deal with as the original condition In some of these cases a course of dilatation with sounds will sometimes give relief The reason for this is twofold In the first place the hypertrophy often occurs because of stricture of the urethra, and the passage of sounds relieves the causative element In the second place, there is a great amount of inflammatory tissue present as a rule which is largely dispelled by the passage of sounds Often the action can be hastened by digital massage by rectum in the region of the vesical orifice with the sound in the urethra

Tumors of the subtrigonal group, if not too large, may be removed by Young's intravesical rongeur, which is an exceedingly valuable instrument but must be used with care and intelligence as it is so powerful that if used recklessly there is a possibility of lacerating the vesical wall It has the advantage of sufficient strength and size to enable the operator to excise a large sized tumor without the use of a general anesthetic Buerger's operating cystoscope may be utilized if the tumor is very small The high frequency current has a distinct value in some of these cases, especially if the tumor is pedunculated If the growth is large and sessile it is sometimes necessary, as it was in one case that I saw in Young's clinic, to do a cystotomy and excise the mass with a scalpel

Cases of fibrous stricture of the vesical orifice are treated best by Chetwood's electrocautery and Young's punch Were it not for the fact that an anesthetic is required for the former procedure, it would be decidedly the operation of choice I have in my series a case treated by Chetwood's method with a perfect result The criticism that there is danger of burning into the rectum is not justified, since the distance from the vesical orifice through the prostate to its posterior surface is in all my specimens an inch or more This operation burns through the internal sphincter, and in healing apparently does not permit that structure to resume its physiologic action Incontinence does not occur, however, if the external sphincter is not injured in performing the external urethrotomy to introduce the instrument Young's punch is used in these cases, but is not quite so radical as the Chetwood operation and must be followed by sounds occasionally It has the advantage of not requiring the general anesthetic and of permitting a more rapid convalescence

Cysts at the vesical orifice are best treated by the high frequency current One application of the spark is usually all that is required to eradicate the delicate wall The Buerger operating instrument in a McCarthy's cysto-urethroscope can also be used successfully in this condition Often cysts in this region arise from a portion of the subcervical group, in which case the remainder of the enlargement must be treated as well, although the cystic portion is usually found to be the major portion of the obstructing mass

SUMMARY

Most writers express the opinion that the majority of tumors at the vesical orifice are composed of prostatic glandular tissue My work on the anatomy of this region has shown that glandular tissue extending into the bladder from the floor of the orifice can only be composed of tubules of the subcervical group because the vesical sphincter which is quite thick on its posterior aspect is interposed between these tubules and those of the middle lobe of the prostate Normally the tubules of this group have small lumina The mucous membrane is made up of two or three layers of low columnar or cuboidal epithelial cells with the nuclei in the center These cells are disposed on a feltlike basement membrane There is never a differentiated muscular layer around the tubules, but rarely there is a fibrous tissue envelope

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[22] Chetwood Tr Am Assn Gen Urin Surg 1901

[23] Bottini Di un nuova cauterized incisore termo galvanico Randall 1874

Structurally they resemble in the adult, when normal, the embryonic prostatic gland tubules In pathologic specimens the tubules are increased in number and size The lumina are somewhat larger The mucous membrane retains its usual appearance, except that occasionally tonguelike projections of slight degree extend into the lumina The cells usually retain their cuboidal shape with the nuclei in the center, although rarely there are found some cells which approach the cylindric type There is usually a fibrous tissue development around the tubules, but it is easily differentiated from smooth muscle by the use of Van Gieson's stain The small size of the tubules, the mucosa made up of several layers of cells, and the lack of differentiated tissue around the tubules have led to the mistaken impression that these tubules are composed of atrophied prostatic tissue, while as a matter of fact they belong to an entirely different group

Alexander Randall[24] of Philadelphia, in a recent exhaustive study of the literature on this subject, has collected the various prevailing views of the pathology of this region, and I shall quote from his article extensively

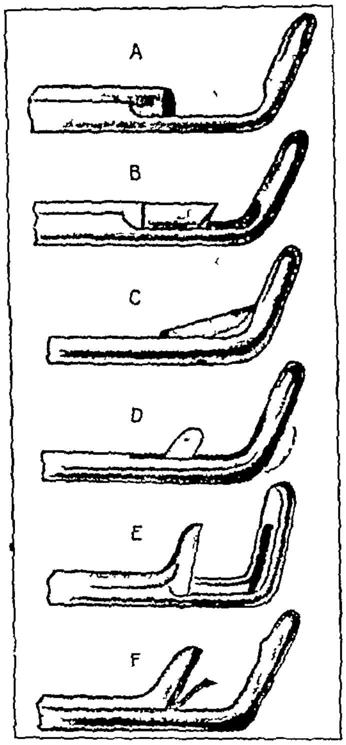

Fig 7 —Mercier s instruments *A* excisor *1839* *B* excisor and incisor 1841 *C* incisor 1844 *D* incisor *1847* *E* excisor 1850 *F* excisor 1852 (Randall)

> The German urologists, since the writings of Englisch in 1901, have firmly sustained the view that in the majority of cases the primary change consisted of an atrophic shrinkage of the prostate *gland* and that the obstruction to the vesical orifice was due to a secondary *distortion* from such changes, plus a concomitant sclerosis of the internal sphincter (Englisch Barth, Groslick Datyner, Kummell Posner, Steiner, Burckhardt Caesar, Dubs et al) This conception they have been able to prove by their investigations and then have shown, as first pointed out by Civiale, that when true bar *formations* exist at the orifice, there is at the same time a diminution in the size of the prostate The valve formation of *the older* writers consisting of a simple fold of mucous *membrane,* is not of this type nor is it of frequent occurrence Likewise *small* middle lobe obstruction due to localized glandular hypertrophy forms another type apart from the bar formation due to prostatic atrophy, though with similar obstructive symptoms
>
> *In* 1913, the first comprehensive study of *the actual obstructive* tissue at the orifice was published by Young, comprising the conclusions drawn from over 100 cases in which he had excised the obstruction by *means of* a special instrument, and subjected the tissue removed to a microscopic study This work is of immense value, not only as being the sole investigation of so large a group of cases, but especially because it embraces the study of the actual obstructive tissue as it occurs at the vesical orifice Since the publication of this work covering such a large group of cases, the previous obscure field of the pathologic histology of this condition, aside from its cause, has become more clear That the cases did not fall into one category was to be expected from the previous work on this subject

"Prostatic bar" is not a good name for the obstructive tumors at the vesical orifice It seems to me much better to refer to the condition by using a term more in keeping with the anatomic lesion present In the cases that I have studied, eighty-eight in number, I have found sixty-eight, or 77 per cent, due to a hypertrophy of the subcervical *group of tubules* Ten, or 12 5 per cent, were due to changes *in* the musculature of the apex of the trigonum vesicae Four, or 4 5 per cent, tumors of the subtrigonal group were found Three, or 3 5 per cent, were cases of fibrous stricture of the vesical orifice accompanied by atrophy of the subcervical tubules Two, or 2 5 per cent, were cysts of the vesical orifice, causing marked obstruction Only one case of true middle lobe enlargement has come to my attention Its development is so extensive that it envelops the vesical sphincter and a medium sized hypertrophy of the subcervical group which is entirely embedded in it This specimen bears out the suggestion made to me some time ago by H W Plaggemeyer of Detroit, who is of the opinion that a true middle lobe enlargement does not project through the sphincter, but when that portion of the gland enlarges alone it lifts the sphincter up as well as the apex of the trigonum It has been my experience that an enlargement of the subcervical group of tubules is frequently accompanied by an enlargement of the prostate gland itself, and adenomatous enlargement of the prostate is in nearly every instance accompanied by hypertrophy of the subcervical group of tubules Therefore it is assumed that the stimulating influence which causes prostatic adenoma also affects the subcervical group in a similar manner, with the exception that it causes an earlier reaction in the case of the subcervical tubules

I do not agree with the German view that tumors in this region are always accompanied by a small fibrotic prostate Chronic inflammatory reaction does, of course, occur in many of the prostates associated with an enlargement of the subcervical group of tubules, but there are no specimens in my series which show atrophy of the prostatic tissue combined with this lesion

CONCLUSIONS

1 Obstructive tumors at the vesical orifice, exclusive of adenomatous *hypertrophy* of the prostate proper, are due in my series in sixty-eight, or *77* per cent, of the cases to a hypertrophy of the subcervical group of tubules, and in ten, or 12 5 *per cent*, of the cases to a hypertrophic change of the musculature of the trigonum vesicae as it passes through the vesical orifice

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[24] Randall Alexander *Prostatisme sans prostate* New York Med Jour., Dec 4 11 1915

to join with that of the urethra In 4 5 per cent of the cases, tumors arising from the subtrigonal group are present, 3 5 per cent of the cases show a fibrous stricture of the vesical orifice, 2 5 per cent have cystic conditions which cause obstruction, there is only one case in this series which shows a true middle lobe enlargement

2 The same stimulation which causes an adenomatous hypertrophy of the prostate in most cases causes an overgrowth of the subcervical tubules, and on account of the greater frequency of the occurrence of the latter condition it is assumed that the subcervical tubules respond to the stimulation more promptly than does the prostate itself

3 The prostate proper is only atrophied when the obstructive mass is due to a fibrosis of the vesical orifice The subcervical tubules are also atrophied in such a case and are found to be surmounted by many layers of fibrous tissue and to be infiltrated with many small round cells

4 Any obstruction at the vesical orifice which causes even a slight retention of urine should be treated promptly in order to relieve a condition which might become serious

5 The treatment should consist of dilatation with sounds, massage and instillations in cases of slight degree In marked cases with considerable residual urine the operation of choice is Young's punch operation Chetwood's galvanocautery and the high frequency current may be used in certain selected cases

6 It is never necessary or desirable to subject the patient to a suprapubic cystotomy for the relief of a tumor at the vesical orifice unless it is accompanied by a general adenomatous hypertrophy of the prostate gland[25]

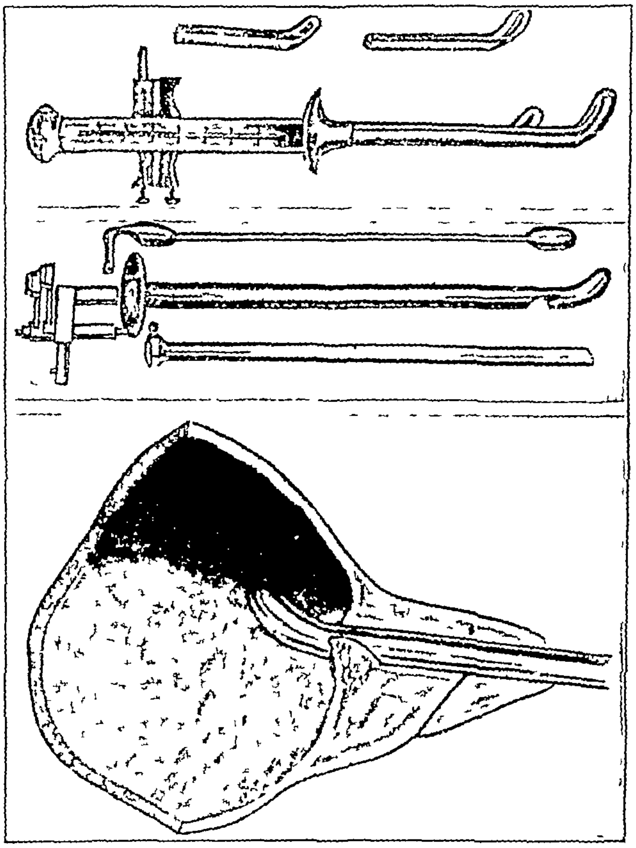

Fig 8 —Above, Chetwood's galvanocautery, in the center, Young's urethroscope below, Young s instrument in operation (Randall)

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS CECIL AND LOWSLEY

Dr H W Plaggemeyer, Detroit Some years ago Dr Keyes stated that it is not the size of the obstruction but its position in the urethra and mouth of the bladder that causes subsequent trouble from back pressure The fact that Dr Lowsley has found that in 77 per cent of these cases there is an enlargement of the glands of Albarran and only one definite median lobe enlargement is to me rather astounding. My attention was first called to this some years ago when helping Dr Young do the perineal operation After a number of recurrences Dr Young began to look for some trouble at the mouth of the bladder and in the floor because that is the anatomic position in which an obstruction is most natural and most easy, except possibly in the circular constriction of carcinoma, and in many of the cases he found this little knob about the size of a hazelnut, which was definitely enclosed in its own capsule It lies in an anatomic plane separate and distinct from the prostate, and in the suprapubic operation it is usually removed In the perineal operation one should always look for this definite little knob, very often small in size, but which may subsequently cause tremendous impairment of kidney function by back pressure I cannot exactly subscribe to the idea of the punch operation in this type of case from a purely theoretical standpoint or from the very nature of the pictures Dr Lowsley has shown this morning, because if this is a definite hyperplasia and we used the punch we would subsequently run the danger of having the aftereffects which we did in former cases in what was then supposed to be middle lobe hyperplasia But the fact that Dr Lowsley has only found one definite middle lobe enlargement might change our whole view of the subject I think that this condition which exists here in young men is the condition that we have been looking for so long, what was previously termed inflammation of the bladder In regard to the high frequency current treatment, it would seem that a preliminary treatment with the high frequency, even to the point of fibrosis, might pave the way for the complete operation by the punch As far as the temporizing operation is concerned, I do not see much to be gained, because with a definite pathologic condition we would only be putting off the evil day

Dr. H J Scherck, St Louis Some time ago I reported a case and I have since then observed a number of cases of superimposed edema at the vesical neck as a cause of vesical obstruction This edema may be like a very large tumor mass In one case the edema was marked when we opened the bladder but we could feel it disappear during the progress of the operation It was superimposed on a hypertrophy of the prostate Since that time I have observed the cystoscopic pictures in these cases of vesical retention without enlargement While there are many causes for it, an important cause I think is unrecognized spinal conditions They are very common, but the type I especially want to call attention to is this edema This edema of the vesical neck, even involving the prostatic urethra, when the pressure is from behind, is a distinct entity In two cases where I could not discover any cause except that for retention I have through the operating cystoscope simply divided the vesical neck two or three times with a little knife just sufficiently to deplete it to some extent, and the retention disappeared for a number of days, until the wound healed, and then the edema appeared again This condition may be so slight as to be hardly observable I believe that in many cases the punch or the cautery operation has the effect of depleting the parts which serve the purpose of relieving the obstruction If the operation is sufficient to leave a groove the effect is permanent In one case the condition recurred again I believe that edema of the vesical neck as a result of an inflammatory condition of the verumontanum, or as an incident in a general arteriosclerosis or a nephritis, may be a cause

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[25] In addition to the references already given the following will be found of interest

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Dr Leland Boogher, St Louis It falls to the lot of all of us to drain the urine in these cases, and it depends on how we can best serve the patient in the drainage A few years ago I read a paper on malarial hematuria, and I was severely criticized because I had drained a bladder of 2,500 c c at one sitting I have lately had several cases, and one that far surpassed that Of course, this drainage was done under observation, the patient being in the care of a nurse or a physician all the time The advantage of this drainage at one time, doing it very slowly and only allowing a very fine needle-stream to flow, is that you will regain the muscular activity of the bladder About a month ago a man entered my office to get relief from an acute retention I examined him, and found he had a watermelon abdomen He was suffering acutely Because of the immense dilatation of the bladder an instrument was easily passed at that time, and was left in situ from 11 30 to 5 30 in the afternoon At that time 3,200 c c had passed from that bladder The man had not been able to urinate and had been using a catheter for four months That night he passed 1,000 c c He has not used a catheter since, and the musculature of the bladder has come back into play You can drain a little bit at a time and you can so weaken the bladder that it will lose its muscular activity But if it is done slowly at one sitting, there is 75 per cent chance of regaining the muscular activity and of overcoming the irritation around the prostatic orifice

Dr A J Crowell, Charlotte, N C I have during the last two or three years had a number of cases of retention of urine in young men that I think undoubtedly was due to enlarged verumontanum At least, the treatment for hypertrophied verumontanum did away with the retention We should keep this in mind in thinking of obstructions at the vesical neck in young men

Dr Paul M Pilcher, Brooklyn We must not draw conclusions as to the pathologic anatomy in these cases from specimens removed postmortem in cases in which there has not been urinary obstruction The surgical pathology existing in the cases in which we have actual obstruction is different from that in which we find anomalies or deformities at the vesical neck in which we do not have obstruction I believe our conclusions should only be drawn from those specimens removed from patients where actual obstruction took place I also feel that we may be overenthusiastic in considering these subcervical and subtrigonal glands as the cause of the obstruction in so many of these cases I feel that there is a close relationship between the tubules described as the subtrigonal and subcervical and the actual tubules which form the various lobules of the prostate I believe there must be some error in concluding that the middle lobe obstruction is so rare I have been a great admirer of Dr Lowsley's work and have followed it very closely and am not criticizing it, but I want to be convinced more fully, and I do not think we are yet in a position to pass final judgment

Dr Edward L Keyes, Jr New York Dr Lowsley has studied the anatomic and pathologic prostrate for many years, and I am glad to testify to the accuracy of his pathologic findings Dr Pilcher will find in the literature several descriptions of the glands of Albarran concurring with Dr Lowsley's I venture however, to call Dr Lowsley's attention to the fact that the Chetwood operation can and has been done by me under local anesthesia Removing the small prostate, notably the small fibrous prostate, is the most difficult surgical problem of prostatectomy The solution of that problem I am coming more and more to think is not the high frequency current or the Young punch or the Chetwood operation, or any other of these devices whereby the obstruction is more or less fully relieved We shave the tip off the prostatic enlargement, with relief for a while, then relapse Having done about fifty Chetwood operations I made a report of twenty-five followed more than a year The mortality was very low In the main the results were good At that time—three or four years ago—I reported a certain number of recurrences Last week I operated on two more patients with recurrences If during a suprapubic operation you put your finger in and feel nothing but a tightly grasping contracture, put your finger through that contracture and remove the little intra-urethral sclerotic lobes

Reflex retention in the male is what the French have called 'prostatisme sans prostate," that is retention of urine without notable prostatic enlargement as felt by rectum The causes may be thus classified First, small carcinomas These may usually be diagnosed by rectal examination on a sound in the urethra Second, tabes, diagnosed by spinal fluid, suggested by absence of the ankle jerk Third, the small hypertrophy which gives a normal prostate as felt by rectum, and is diagnosed by cystoscopy Fourth, diverticula, which also are diagnosed by cystoscopy Fifth, the true reflex A few months ago the general service in Bellevue sent down a case with retention of urine They had pronounced the rectum normal, but we found a linear stricture of the rectum This man had several ounces of residual urine, an inflammation of the bladder and frequent urination We anesthetized him, split his stricture and cured him We had a second patient whose inflamed bladder and retention of urine were due to fissure in ano Operating on his fissure relieved all his urinary symptoms

Dr Arthur B Cecil, Los Angeles When I took up the subject of reflex retention of urine I realized that as a clinical entity chronic reflex retention of urine would be doubted It is true that the large majority of retentions of urine are mechanical in origin, due to obstruction in the urethra or at the neck of the bladder If they are not of mechanical origin we have to consider and keep in mind the great difficulty of diagnosing certain obscure nerve lesions In any questionable case a Wassermann test of the spinal fluid should certainly be made In the cases I reported it is evident that the woman from whom was removed the hydronephrotic kidney and who was cured of her bladder disturbances was suffering from a chronic reflex retention of urine It is also true that the case of marked seminal vesiculitis was cured by massage of the seminal vesicles I might say that this man had previously been operated on suprapubically without relief Chronic reflex retention of urine is not a common condition but it is undoubtedly occasionally responsible for some of the cases of inability to empty the bladder

Dr Oswald S Lowsley, New York I am really very glad to get Dr Pilcher's suggestion and Dr Plaggemeyer's suggestion that we go slow in blaming the subcervical group tubule enlargement for so many things I suppose we are inclined to get overenthusiastic about any proposition that we work on a long time I have dissected so many of these cases and have worked on them so hard that I think I am pretty nearly right about my observations concerning the middle lobe There are surprisingly few middle lobes which project into the region of the neck of the bladder When there is hypertrophy of the lateral lobes, there is always hypertrophy of the middle lobe as well, but it is just a connection between the two Anatomically it seems almost impossible for it to project into the bladder in the usual way because the so called middle lobe which I believe is Albarran's group projecting into the bladder, is within the sphincter The middle lobe cannot, I think, project into the sphincter, because it occurs behind the sphincter It does not go back, turn a corner and go into the sphincter This one enormous specimen sticks right out, and there is no doubt about that, but practically all of these specimens removed at operation—I have studied a very great many of them—usually have more or less the appearance of that specimen which I passed around showing the subcervical group separated from everything else by the sphincter and attached to the upper end of the verumontanum and the middle lobe adjoining, with the two lateral lobes, to form the adenomatous hypertrophy Dr Keyes' point was well made about not shaving the tip off of this little nubbin that sticks out Of course, you do not do that because the whole mass projects directly within the vesical orifice, and in doing the punch operation you take out everything that projects and there is not much left to grow out, because you take away the whole mass but I always tell my older patients who have not had a prostatectomy performed that they may have to have it later on Even if it is only palliative, it gives them good drainage It has the same effect as wearing an indwelling catheter Then if the prostate becomes obstructive, as it is liable to do in these old men, you have already promised him that he might have to have a more serious operation later on, but, in the meantime, this palliative procedure is still worth while in my opinion In the younger men the men around 30 and 40, you do not have to consider that point, because as a rule, the enlargement of the prostate is not considerable

Edema at the vesical orifice is quite prevalent The thing to do is to find the cause of the edema and relieve it, but in finding the cause it is possible to get a temporary relief, in which case some form of cauterization is better, either silver nitrate or the high frequency current or some such procedure I am very glad to know that Dr Chetwood's operation can be performed successfully under local anesthesia In cases of fibrous stricture of the vesical orifice that is the operation that should always be performed if it can be done under local anesthesia The results are always good

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THE OPERATIVE TREATMENT OF TUBERCULOSIS OF THE SPINE*

NATHANIEL ALLISON MD
AND
HERBERT H HAGAN, MD
ST LOUIS

This report is made in order to give our experience with forty cases of tuberculosis of the spine in which operation has been performed in a manner designed to stiffen their spinal columns by internal splintage Two methods of operation have been used the osteoplastic operation, known as the Hibbs operation, and the bone transplant operation, known as the Albee operation

Of the forty patients operated on, nine had reached adult life before the onset of the disease, and thirty-one were children The oldest patient was 37 years of age and the youngest 19 months of age The diagnosis of tuberculosis of the spine was made positive in each case by roentgenographic study, the exact location and extent of the disease being clearly made out, and by clinical tests for tuberculosis, and, wherever possible, by guinea-pig inoculation

Our first operation was done Oct 5, 1912 Six patients were operated on in 1913, eleven patients in 1914, fourteen patients in 1915 and nine patients of this group in 1916 Of these forty patients, ten were operated on by the method of Hibbs and thirty by the method of Albee

We have divided the cases into three groups in order more briefly to present their clinical characteristics

Group 1 Patients operated on in the early stages of Pott's disease with little or no evidence of deformity and no complications

Under this head fifteen of our forty cases fall Without exception, this group of fifteen patients have stood the operation well, have had rapid convalescence, all symptoms have disappeared, and we feel that they represent complete recovery

Group 2 Patients operated on that presented well marked deformity with persistence of more or less acute symptoms, but no complications

Under this head nine of our forty patients are collected Of these nine, eight have made recovery and are about without supports and are in fairly robust health One patient has shown a return of acute symptoms after three years, and has signs of a developing pressure paralysis

This patient was operated on after the method of Hibbs and did very well up to three months ago She is now being treated as one would treat conservatively a case of Pott's disease with paraplegia

Group 3 Patients who were operated on in the presence of complications to their more or less acute processes of tuberculosis of the spine

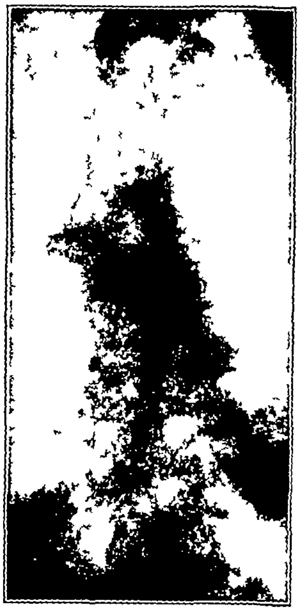

Fig 1 — Roentgenogram of bone graft taken one year after operation showing fracture of graft at seat of disease

These complications were psoas or lumbar abscess, 5 cases, tuberculosis of other joints, 2 cases, pressure paralysis, 5 cases, pregnancy, 1 case, pulmonary tuberculosis, 4 cases

Psoas or Lumbar Abscess—Of the five cases that presented abscess formation as a complication to the Pott's disease, three were treated conservatively as far as the Pott's disease was concerned, and the abscess was opened, its contents cleaned out, and the wound closed In these three cases we had primary union of the incision for the cleaning out of the abscess

The operation on the spine was then undertaken In one of these cases the abscess refilled and discharged through the line of incision In the other two cases the abscess did not refill

These three abscesses were psoas abscesses

In two of the cases, abscesses occurred after the operation on the spine, and they were treated in a similar manner In one case we obtained healing, and in the second case the abscess continued to discharge but finally closed

We are led to believe from this experience that abscess formation is not a contraindication to the operation on the spine

Tuberculosis of Other Joints—In two of our cases, in addition to having Pott's disease the patients had also tuberculosis of the hip joint After the subsidence of acute symptoms the spine was operated on, and the hip has been treated conservatively in the ordinary manner One case has been treated with a jacket spica and the other with a Bradford abduction hip splint Neither of these patients has shown any retardation in their convalescence since the operation

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

Paraplegia—Five of our patients have shown symptoms of spinal pressure evidenced by increased reflexes, ankle clonus, and inability to walk or stand

One of these patients, a man of 30, had symptoms of Pott's disease for five years with a gradually increasing deformity About two years ago he noticed a jerking of his legs when bearing heavy weight on his toes, shortly after this his legs became weak, especially the right one, and now the toes drag on the floor when walking, and his gait is very stiff The physical examination showed a sharp line of hyperesthesia extending across the trunk at the level of the sixth dorsal on the right and the fifth dorsal on the left Below this there was definite hypalgesia On this man an Albee operation was done, Sept 16, 1914 After the operation his area of hypalgesia gradually lessened and entirely disappeared, his ankle clonus, spasticity, and plus reflexes have now disappeared, and he is about without symptoms

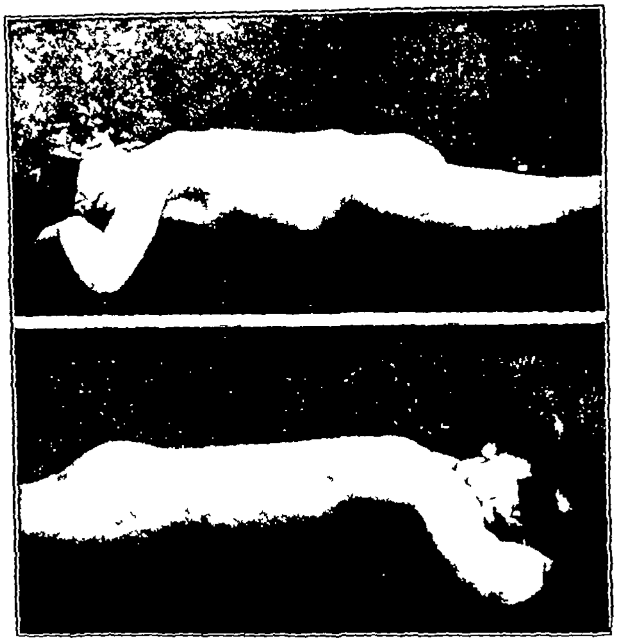

Fig 2—Lessening of deformity after Albee operation

The second patient, 2 years of age, Jan 27, 1915, showed clonus on both sides, Babinski on both sides, and very active knee jerks and no voluntary power of the thigh or legs He was operated on, March 22, 1915, an Albee operation being done from the seventh cervical to the tenth dorsal, being secured by a tibial graft April 5 1915, voluntary power had returned to some extent, in both legs, Babinski was *still* present, and clonus still present. April 28, the child began running a temperature with no assignable cause May 19, patient is able to move his legs very well Babinski has disappeared and also clonus June 26 after a gradual onset the child died of tuberculous meningitis One other child in this group who had complete paraplegia died three weeks after the operation of tuberculous meningitis

The two remaining cases of this group had only slight involvements evidenced by ankle clonus slight spasticity and positive Babinski These two patients after operation rapidly improved The signs of spinal pressure disappeared, and they are now about without symptoms

We have been led to conclude from our experience with paraplegia as a complication in Pott's disease that an operation should immediately be done, as it seems to us to offer the best chance for a speedy recovery from the pressure on the spinal cord

The two patients in this group who died died of tuberculous meningitis, and we have no explanation to offer for the occurrence of this fatal complication

Pregnancy—One of our patients, a woman of 19, had just recovered from her first pregnancy when she began to notice the symptoms of Pott's disease

She had a well marked and rapid destruction of her first lumbar vertebra, and appeared at the hospital with her five months old infant The infant was weaned and the mother was operated on several weeks later, a perfect result being obtained She gained weight and was about without symptoms at the end of ten weeks and was discharged to her home In spite of our advice she returned to the hospital at the end of six months again in a state of pregnancy This pregnancy was allowed to run full term and a normal infant was born The mother made a normal recovery, and since then has had no symptoms of activity in her diseased spine A roentgenogram of her graft illustrates this report This was taken after her second pregnancy and shows the graft in good position but broken through its middle

In passing, it has been our experience in the study of these grafts after they have been placed in the spine that some of them show signs of fracture after a more or less indefinite period without causing any evidence of trouble

Pulmonary Tuberculosis—In our group of forty cases we have had four cases that showed signs of more or less active pulmonary involvement In spite of this complication we have done the operation, doing it as rapidly as possible, so as to cut down the length of time required for the administration of the anesthetic It has been our custom in these cases, and we might add in all cases where the physical condition of the patient was below par, to prepare the patient completely for operation and have everything ready to go ahead before the anesthetic is administered As soon as the patient passes the primary stage of anesthesia, the operation is then started and finished as rapidly as possible In this way considerable time has been saved In none of these four cases has there been any evidence of the operation causing increased activity in the pulmonary involvement

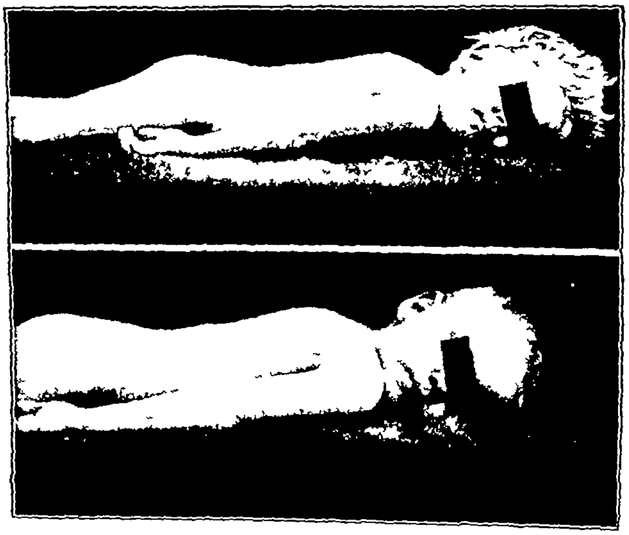

Fig 3—Lessening of deformity and rapid improvement in general condition after Albee operation

Complications from the Operative Procedure—In three of the forty patients operated on there has been infection at the time of operation of the operative wound

One of these patients, a man of 27, developed a severe *Staphylococcus aureus* infection on the third day after operation in both the wound on the shin and in the back After a very serious illness from this infection he gradually recovered and his wounds closed Two pieces of his graft were discharged, one from the upper end of the wound and one from the lower Healing finally took place and his result has been an excellent one

The other two cases were slight infections, one of them involving the lower end of the graft, which was discharged, the other being simply a superficial infection at the site of the skin sutures The other thirty-seven operated cases healed by primary union

We have been struck in this series of cases, especially in children, with the immediate improvement in general health and with the rapid convalescence that these patients have made after operation Almost without exception, the children have gained weight, have become very active when allowed to be up, and presented a marked contrast to the slow improvement seen in cases treated conservatively

We discovered, what seems to us, to be a valuable method of holding these cases fixed immediately after operation It is our custom to reverse the Whitman frame so that it lies concave on the bed, and place the child, face down, on this frame, securely binding it as one would in the reverse position In this way there is no pressure on the operative wound, and the position of hyperextension is more or less perfectly kept up

We feel from our experience that it is highly advisable, and, indeed, in certain cases necessary to continue support for at least one year after the time of operation We are led to this belief by the character of bone regeneration which must take place before the spinal column becomes securely ankylosed, and we feel that the too early removal of supports is likely to result in a return of symptoms and an increase in deformity

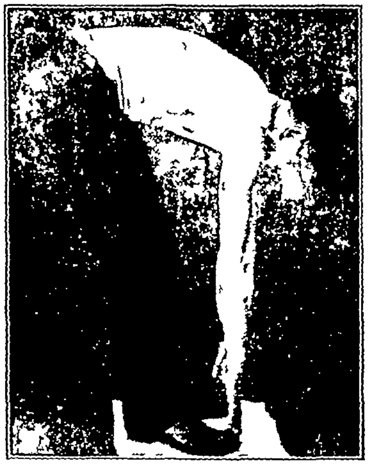

Fig 4 —Ability to flex the spine one year after Albee operation

SUMMARY

Forty patients were operated on

Two deaths were due to tuberculous meningitis

There were three infections at the time of operation without serious consequences

Fifteen patients completely recovered without deformity or complication, and at the present time are far enough along since their operation to be called absolutely well

Eight patients have deformity, but with the disease arrested and no active symptoms

Of the sixteen patients who had complications three with paraplegia have completely recovered, and two have died

Of those with pulmonary tuberculosis (four patients) there is evidence of activity of disease at present, but the disease of the spine is not causing symptoms

Of the patients with tuberculosis of other joints (two) these are still under treatment, but are making slower recoveries

Of the patients with psoas abscess (five) all five have recovered and the abscesses have ceased to discharge

The total of this group would be four cases of pulmonary tuberculosis, and two of tuberculosis of other joints, making six still under observation, leaving ten in which the disease has been arrested

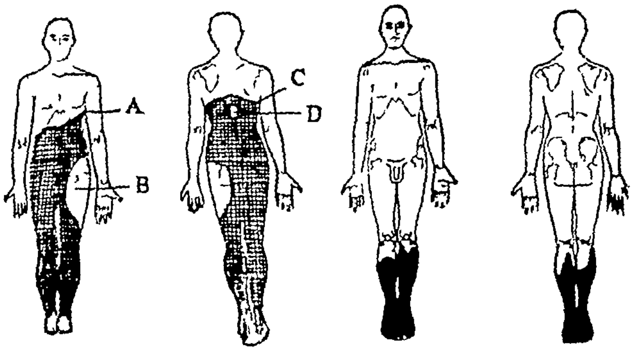

Fig 5 —Rapid improvement in sensory changes in a case of paraplegia after Albee operation three weeks time patient made complete recovery shaded area, hypalgesia *A*, narrow zone to hyperalgesia *B* area of normal to increased response to pin prick *C* hyperalgetic zone *D* gibbous

We are led to believe from this experience with forty cases that an operation for ankylosing the spine should be performed in every case of Pott's disease as early as a diagnosis can be accurately made, and that the presence of complications should not influence the surgeon in delaying the operative procedure, unless the complications are of too grave a nature

We do not feel in a position to discuss the relative merits of the Albee operation and the Hibbs operation We have had equally good results with each procedure We feel, however, that the Albee operation is more simply done and that on this account it is advisable in the majority of instances

Our experience with adults and children has been about the same We feel, however, that the good results obtained are much more conclusive in the case of adults, who respond very slowly to conservative measures

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ABSTRACT OF DISCUSSION

Dr J T Rugh, Philadelphia I want to endorse all that Dr Allison said regarding the after-treatment of these patients He has shown clearly the unwisdom of leaving off the support too early in these cases, especially in young children Support must be maintained until bony union takes place, which requires six months to a year or a year and a half I operated in one of these cases by the Albee method, a case of tuberculosis of the atlas and axis The child was struck on the side of the neck with a baseball bat About four hours

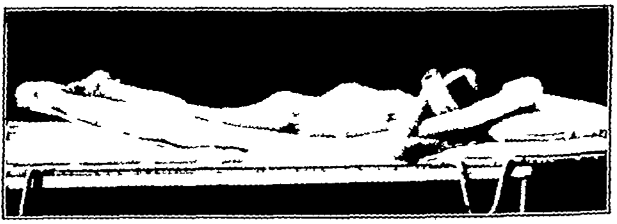

Fig 6 —Reversed Whitman frame used for fixation after operation

later he dropped in the street paralyzed It was thought that the paralysis had come from the injury, but the subsequent history showed that he evidently had a tuberculous lesion there and that this accident had simply precipitated the entire trouble He remained paralyzed for four or five weeks, when an abscess ruptured on the side of his neck and discharged, after which the paralysis cleared up He came under my care a year and a half after the onset of the tuberculous trouble, with slight spasticity in the lower extremities I dug a hole in the occiput, and measured my graft to fit between it and in contact with the third and fourth cervical spines I placed the end of the graft in the lower pocket, tilted the head forward, and inserted the graft into the hole in the occiput Then I tilted the head back and sewed the graft into place There were no complications, and he made a splendid recovery The paralysis has entirely disappeared Before I operated, if his head tilted forward, he would immediately become paralyzed, and it had to be held back from six to eight hours before the paralysis disappeared Since the operation, there has not been this trouble

Dr James T Watkins, San Francisco I want to show you pictures of the spine of a child who died several months after I had performed a Hibbs operation The morbid process involved the bodies of two vertebrae in the middorsal region, and at our operation we synostosed the laminae of six vertebrae, going well above and below the lesion Dr Ely said that his sections showed that the spines had disappeared By that I suppose he meant that they had lost their configuration as spines and had become fused with the laminae One can still differentiate them in the picture

NEW METHODS OF PRECISION IN THE TREATMENT OF FRACTURES *

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The treatment of fractures is largely a mechanical problem, and in spite of the fact that this is a mechanical age, little progress has been made in the mechanics of fracture treatment In fact, the assertion has been made that many of the methods and devices in use today might easily be mistaken for implements belonging to the era of the wooden plow Even the method of applying weights to fractures of the femur, as popularized by Gordon Buck as recently as fifty years ago, would have a familiar look to some of the ancients

It is true, of course, that advance has taken place in the care of fractures, but the advance has largely been incidental to the development of roentgenography, and in the direction of technical and instrumental improvements in the operative treatment of fractures

The simple methods have not received the attention which is their due, and even in the operative methods, the development has been in the direction of applied mechanics One thing Lane emphatically demonstrated is the fact that successful fracture operations are impossible without efficient instruments and without a technical dexterity in the handling of exposed tissues hitherto unknown

It is strange in this age of automatic machinery and instruments of precision to see so much dependence placed on the manual treatment of fractures It is strange because hands must vary considerably in strength, skill and performance The tradition "hand made" has lost much of its glamor There would be no such things as automobiles, aeroplanes or submarines if their parts had to be turned out by hand When it comes to precision and uniformity, mechanical methods must supersede the manual in the treatment of fractures, as in any other work in which the intelligent application of force is required Any one who has attempted to exert traction on a broken limb and to hold it in a fixed position appreciates that it is not as simple as it looks Even skilled hands become unsteady and fatigued The element of unreliability is always present and increases with the inexperience of those who assist in the undertaking

The time was when the diagnosis of fractures was made without the mechanical aid of the Roentgen machine, and the time is fast approaching when the treatment will not be undertaken without methods and apparatus of precision It is impossible to apply force accurately by methods which are necessarily inaccurate The opportunity for improvement in the simple methods of fracture treatment is abundant, and as these simple methods are made more efficient the necessity for open reduction will diminish

The time is not far off when fractures will be almost entirely treated in hospitals In fact, it will be difficult, as well as dangerous, to attempt to do so, because the public will be aware that complete scientific equipment for diagnosis and treatment can be found only in such institutions There are few communities in which people are not within reach of a fairly modern hospital Here they can be efficiently and promptly treated and sent home to convalesce In this way, fracture patients become no burden to a hospital

At the same time it will be necessary for the hospitals to devote more attention to the care of fracture cases The public is becoming educated, and it is a public accustomed to "modern improvements" Moreover, the industrial world, which pays the disability bills in occupational fractures, is becoming interested Not only must the apparatus be efficient, but its use must be in the hands of men especially trained for the work It will no longer do to divide the fracture cases into small lots and assign them to men whose chief qualifications are that they are interested and proficient in abdominal surgery

With the introduction of more precise methods, the treatment of fracture cases will become more systematic Much of the unnecessary handling of broken limbs will be eliminated This will save a vast amount of needless suffering and promote the processes of repair One of the noticeable features will be the dispatch with which these cases will be handled

There is no reason why a fracture patient entering a hospital should not be placed on a bed and a spli[illegible] applied which permits physical and roentgenograp[illegible] examination without disturbing the limb in an[illegible] There is no reason why roentgenograms should [illegible] taken at once, so that when the attending [illegible] arrives, the complete record is before him [illegible] permanent treatment can be instituted with[illegible] This simulates the treatment of surgical [illegible] (osteotomies) in which almost no difficul[illegible] enced, because the bones are appro[illegible] immobilized before the muscular co[illegible] become fixed

In the treatment of some 3,000 cases [illegible] during the last seven years, I have prac[illegible] ticed the immediate reduction and [illegible] fractures under ether During this [illegible]

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* Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit, June 1916

cut or split a cast in anticipation or on account of swelling. In fact, the only cases of extensive swelling or of bleb formation (so commonly associated with fracture) which I have seen are those in which the treatment was delayed. As I have successfully proved to myself that the mortality and suffering in fracture of the hip in old people is directly due to conservative treatment, so I believe that if we are looking for swelling and trouble, then treat fractures expectantly. If we wait until the swelling disappears, it is only necessary to wait for it will not disappoint us.

THE TREATMENT OF FRACTURES OF THE FEMUR *

F. E. PECKHAM, M.D.
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1. THE MIDDLE THIRD

Fractures of the femur in the middle third have aroused considerable discussion in recent times regarding methods of treatment. Different mechanical methods have been advocated by different surgeons, and finally the open method with the use of Lane plates occupied the center of the stage and caused quite a little excitement.

A fracture is a definite mechanical problem. First of all, a roentgenogram is necessary to see exactly what the condition is, whether transverse, oblique or comminuted. How far the fragments are riding by is also a good thing to know. In these fractures, the result is so easily obtained that, in the great majority of cases, no anesthesia is necessary, and there is no "setting of the bone" in the ordinary acceptation of that expression. Every orthopedic man learned during his early hospital training that an acute tuberculosis of the hip with its muscular rigidity and flexion deformity was overcome by traction. Pain was relieved almost instantly and muscular contraction was overcome by constant, incessant and efficient traction.

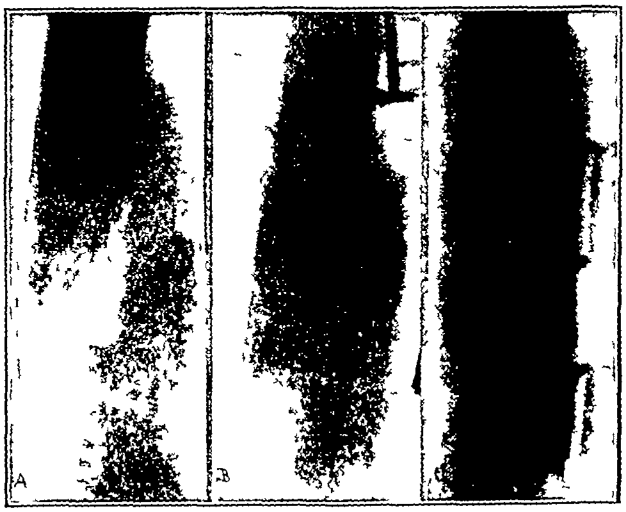

Fig. 1 (Case 1).—Oblique fracture of femur: *A*, fragments pulled down to length; *B*, *C*, result of gradually tightening the coaptation splints.

In a fracture of the middle third of the femur, traction properly and efficiently applied will just as surely overcome the muscular contraction which is the cause of the fragments riding by, thus producing shortening. For traction to be efficiently applied in this particular condition, countertraction must be equally efficient. Here is where the treatment, as usually prescribed in textbooks, fails. Efficient countertraction or counterextension is considered to be accomplished by elevating the foot of the bed. Nothing could be further from the truth. Elevation of the bed is usually (although not always) necessary, but to get really efficient counterextension, a well padded perineal band is placed in the groin, one of the straps going over the front of the body, the other going beneath the body, with a pulley at the head of the bed. Weights are then added to both the foot and the head of the bed, varying according to the necessities in the individual case. In the direct extension, anywhere from 10 to 40 pounds may be necessary. The foot of the bed may be elevated as usual and then about one-half the weight necessary in the direct extension may be added for the counterextension. If 30 or 40 pounds are necessary for the extension, then use 15 pounds for the counterextension. This makes a traction in each direction, thus pulling the fragments apart in the longitudinal direction of the leg.

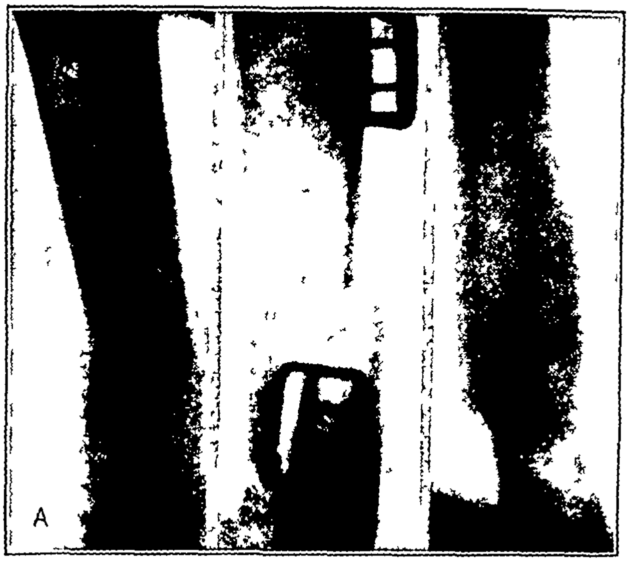

Fig. 2 (Case 2).—Oblique fracture of femur: *A*, fragments pulled too far apart by over an inch; *B*, apposition obtained by lessening the weight; *C*, condition a little less than a year after the injury.

If this "two way" pull is kept up constantly, incessantly and efficiently, there is usually only one thing can happen, and that is the fragments will be pulled down so that, in the middle third, they will almost fall into apposition. Coaptation splints may be placed about the leg, but they do not need to be really adjusted and tightened until the leg is down to length. Now and then, a strand of tissue may be caught in such a way as to hold one end from just going into position. Under such conditions, pressure and counterpressure by pads of sheet cotton beneath the coaptation splints will usually correct. In case there should be a large piece of muscle interposed to prevent apposition, then all that is necessary is to take the patient to the operating room, bed and all, without removing the extension weights. After the usual preparation, make the incision, expose the fragments, remove the obstruction, and the ends will either fall into apposition or can be easily held by the coaptation splints over a light surgical dressing

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* Read before the Section on Orthopedic Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

This method would seem to reduce the treatment of fractures in this location to their very simplest terms, and I wish to report some cases treated in this manner

Case 1—Mr A An oblique fracture of the femur with about 2 inches' shortening Extension of about 40 pounds with foot of bed elevated and counterextension of 15 pounds At end of ten days with coaptation splints tightened, the fragments were down and together (Fig 1) Discharged from hospital with no shortening This case was treated about one year ago, and a letter from the man states that he is at work (putting in elevators) and that he walks without a limp

Case 2—Mrs B This was an oblique fracture of the femur with 1½ inches' shortening Extension of 35 pounds with foot of bed elevated, and counterextension of 15 pounds At end of two weeks (Fig 2 *A*) the fragments had been pulled over an inch apart, i e, the leg had been pulled down until it was that much too long Removing 10 pounds from the direct extension, the leg shortened up till the fragments were in apposition, as shown in Figure 2 *B* This was treated a little less than a year ago, and in April, 1916, the patient reported at my office with no shortening, no limp, and the Roentgen ray shows the condition in Figure 2 *C*

Case 3—Boy, aged 4 years Oblique fracture in middle third of femur Extension of 15 pounds with counterextension of 10 pounds easily brought the leg down to length (Fig 3 *A*), but the Roentgen ray showed the fragments "back to back" (Fig 3 *B*) instead of edge to edge Under ether an attempt was made to readjust them, but with *no result* Then the boy was taken to the operating room in his bed, with extension and counterextension in full force (Fig 4) The leg was cleared of adhesive straps from the knee up and prepared for operation in situ An incision was made through the skin, and then the muscle bluntly dissected to the bone, where a piece of muscular tissue was removed from between the fragments The broken ends fell into apposition immediately The skin was sutured and a light surgical dressing applied and boy bed and all returned to the ward Union promptly resulted, with a perfect leg, as shown in Figure 3 *C*

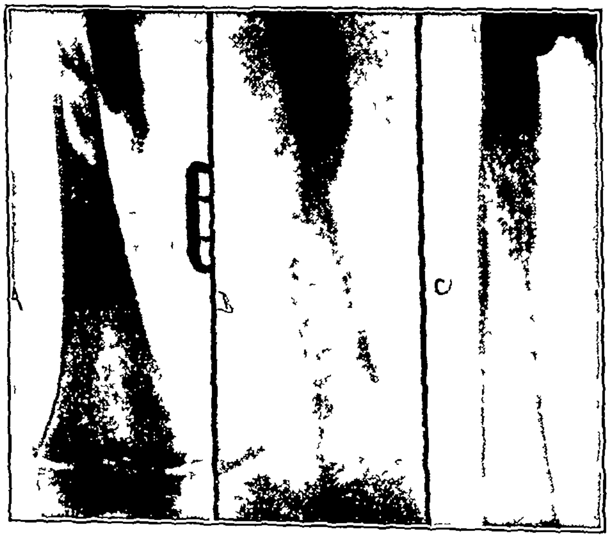

Fig 3 (Case 3)—Oblique fracture in middle third of femur *A* leg pulled down to length *B* fragments back to back instead of in proper apposition *C* union some months afterward

2 FRACTURES OF THE HIP

Appreciating that with extension and counterextension, the leg can hardly help coming down to length, it occurred to me that with proper mechanics, fractures of the hip could be readily treated without the use of the plaster spicas A number of hips at different times having been opened through the anterior incision for the purpose of exploration and freshening of the broken surfaces, it was ascertained in this way ocularly that if the leg was pulled down to length and strongly internally rotated, the broken ends became locked in apposition The getting down to length is easily accomplished by efficient extension and counterextension, as already described The internal rotation is easily accomplished by rotary pulls by means of adhesive plaster straps extending around the leg from the top, over the inside and under the leg, then passing up over a particularly wide T splint In this way the extreme degree of internal rotation may be obtained and held With these mechanics kept perfectly efficient, the fragments are kept locked in apposition as verified by the Roentgen ray

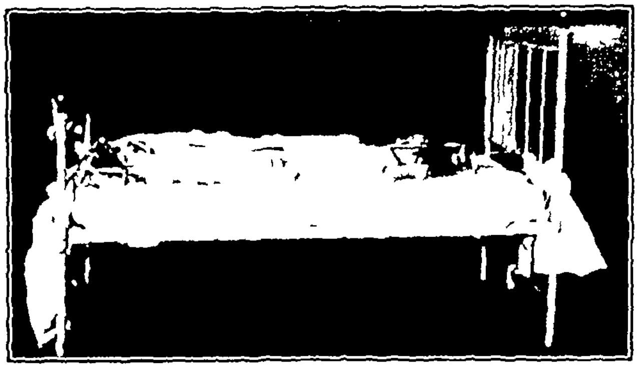

Fig 4—Method of extension and counterextension

I wish to report two cases to demonstrate the efficiency of the mechanics

Case 4—A man sustained a fracture through the great trochanter with shortening of 1¾ inches The leg was pulled down and internally rotated, thus bringing the broken surfaces into accurate apposition The recovery was perfect, with possible flexion

Case 5—A boy sustained a separation of the epiphysis of the right hip, but continued to walk around on it, although lame and painful Three months after the accident, the boy was brought for examination The Roentgen ray showed the condition Efficient extension and counterextension with strong internal rotation brought the hip down into position Union was obtained, however, and scarification of the surfaces became necessary, but the roentgenograms are exhibited to demonstrate the possibilities of the mechanics as described above

The results in these two cases were so encouraging that others have been treated in a similar manner with similar results When treated in this way, the back and whole body is easily reached with alcohol and powder, and the patients are much more comfortable than those I have seen in plaster spicas

266 Benefit Street

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS HAWLEY AND PECKHAM

Dr Fred H Albee, New York We employ the Hawley table in all cases of fracture in any part of the body where it is difficult to get replacement and hold the fragments firmly in position

Dr J T Rugh, Philadelphia I want to speak of three cases of ununited fracture of the hip, one in a woman past 60 years of age Two of these cases have been entire successes and the third patient is not cured In a case of old fracture of the neck of the femur a graft was placed

That patient, at the end of many months, is walking well, with perfect results A case of twisted fracture was also an excellent result In another case there was some comminution in the head of the bone When the graft was placed it, unfortunately, did not penetrate as far into the innermost piece of the head of the femur as it should It has been a year and a half since the operation, and the patient is not yet walking I could not understand why until I found that the graft did not penetrate all the fragments I think that the secret of success is to get the peg through both or all the fragments Then it does not make any difference whether the peg is round or square If it is through in proper position, the result will be good

Dr John Ridlon, Chicago As to the Hawley leverage device for congenital dislocation of the hip, I would say, in the first place, that it is not necessary to use any leverage device to replace a congenital dislocation of the hip In the second place, it is dangerous to use it, because, with a leverage device like that and the one on the Bartlett apparatus it is possible to fracture the neck of the femur We fractured one with the Bartlett apparatus As to Dr Peckham's fracture work, it is possible to pull down some fractures of the shaft of the femur, and when you have pulled down three or four, you think that you can do this in all cases, but you cannot I have had a case in a man of great muscle development where 58 pounds weight for 8 days did not reduce the displacement at all We have to use traction, in such cases, to an enormous amount to pull the fragments down, and when they have been pulled down they do not always drop into place," and we cannot always manipulate them into place In this case, when the leg was opened and the bones pulled down with a space of half an inch between the ends of the fragments and the traction slowly relaxed, instead of the fragments going end to end, they went just where they were before, and there was no tissue between the ends, muscle or otherwise

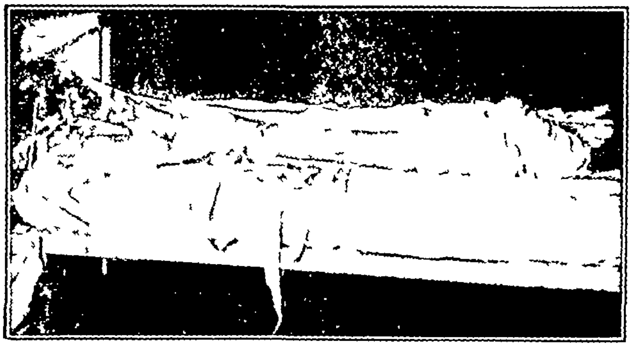

Fig 5—Wound the day the stitches were removed method of operating

Dr. H R Allen, Indianapolis I enjoyed the demonstration of the use of the operating table with all of its fancy attachments and complications and believe it would be very gratifying to a man who feels that the plaster of Paris dressings are essential or scientific Personally, I do not use such dressings for any human condition that I have ever seen I do not like the use of inadjustable splints that conceal the results I prefer splints made of wire and adhesive plaster They are light, cheap, adjustable and sanitary, and permit inspection at all times Such splints do not conceal errors If you choose you can apply the splint before operating then when the operation is through you are through These splints do all that a plaster splint can do and as much more as you desire They are easy to make and easy to apply and they are comfortable and do what is expected of them I agree with Dr Ridlon But Dr Peckham has never found a case that could not be reduced by traction alone Dr Ridlon and I and others have found plenty of this variety Suppose you have a square ended fracture with overriding in a thigh whose ham-strings are tight on simple knee extension, how would you expect the jagged ends of the bone to slip past each other into place? If you unlock the thigh muscles by flexing the knee then the fragments will easily go to place Then, after flexed reduction you lock the broken ends tight together by complete knee extension There is a use for this mechanical tightening of the ham-strings but this use is not absolutely dependable Dr Peckham's method of traction will reduce most of the spinal fractures of the thigh, but what good is reduction by any method unless you follow it up with some guaranteed method of maintaining reduction Really, the maintenance of reduction is all that counts since every bone will unite in the position in which it is held and in no other position

Dr J C A Gerster, New York Dr Howard D Collins has devised a most ingenious and convenient traction bandage-sling for use in connection with Dr Hawley's table Before applying the bandage two pieces of felt ¼ inch thick and 4 inches wide are laid next to the skin One, 6 inches long, is laid in front of the ankle over the dorsum of the tarsus, the other, 4 inches long is laid over the Achilles tendon The bandage is of stout Canton flannel, 3 inches wide and 2 yards long The bandage forms two symmetrical hitches, one in each side of the ankle Each hitch forms a Y, one limb passing in front and one behind the ankle Traction is made by pulling on the stems of the Y's As soon as traction is released, constriction ceases This spontaneous relaxation of the hitches would not take place if they were so applied that they formed T's instead of Y's By appropriate adjustment, varying the site to suit each case, the points where the limbs and stems of the Y's meet can be so placed that the subsequent traction suffices to hold the foot correctly inverted and at right angles to the leg As soon as plaster has set the projecting stems of the Y's, by which traction is maintained, are cut off flush with the cast The blueness of the toes from interference with the venous return, present up to this time, subsides immediately, because constriction ceases on relaxation of traction The advantages of nail extension are many for cases in which, on account of associated trauma to skin, etc or on account of long standing shortening, the customary plaster of paris or traction methods are unsuitable In fractures, properly treated from the very start, nail extension will not be indicated in more than 4 to 5 per cent of the cases

Dr Edwin W Ryerson, Chicago It is perfectly evident that many fractures of the femur can be treated as has been outlined by Dr Peckham, but some cannot, and other treatment must be used Dr Albee said that we need exact doweling to secure union of bone fragments That is desirable without doubt, but I have a perfect case in which I took the bone-spike from the tibia and filed it nearly round with a rasp and file, without using a doweling instrument This was a complete fracture of the neck of the femur, incurred a year previous, a so-called intracapsular fracture Another point I wish to refer to is the use of the motor drill for making holes in the upper end of the femur I do not think you need it I believe that it winds up the soft tissues too much, as Dr Allen said a year or so ago It is better to have the drill point in a plain hand-drill, because the work is then easier and safer, and you can control the drill better in going through the bottom of the trochanter You should not start the drill on the trochanter itself, but just below the trochanter, and go obliquely upward and inward In one of the roentgenograms shown the bone-peg was inserted at a right angle to the shaft of the femur This is not the way I prefer to do I go down under the overhanging border and drill upward and inward, and this is easier with the hand-drill than with the motor-drill I have found the use of the Hawley table very satisfactory I think that it solves many of our problems In a clinic where much fracture work is done, I consider it invaluable

Dr Frank E Peckham, Providence, R I I do not think that any one can succeed every time I selected three pretty bad cases and they resulted very well I think that the less metal we put in the better I would suggest as a good motto, "M M J"—Minimize metallic junk

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The Partnership of Genius and Labor—Genius begins great works, labor alone finishes them—Joseph Joubert

Therapeutics

TRINITROTOLUENE POISONING

In the ammunition factories of Great Britain, trinitrotoluene, one of the high explosives employed, has been found to be dangerous to the health of a minority of workers coming in contact with it, and has proved fatal from toxic jaundice The matter has become so important that the medical inspector of factories has prepared for the benefit of practitioners a paper on the chemistry of trinitrotoluene (or T N T, as it is designated), its method of absorption, the symptoms produced by it, the precautions to be taken against poisoning, the method of treatment, and the differential diagnosis of trinitrotoluene poisoning from that of dinitrobenzene, tetryl and lyddite, the latter a picric acid derivative[1]

Trinitrotoluene is a high explosive obtained by nitrating toluene, from coal tar, a benzene compound in which one hydrogen atom is replaced by CH_3, and in which during the process of nitrating three other hydrogen atoms are replaced by the nitro radical, NO_2 The product is solid at ordinary temperatures and may be reduced to a fine powder, melts at 80 C, and sublimes when melted

When the skin or hair is exposed to trinitrotoluene by contact, a characteristic yellow or tawny orange stain is produced, which is removable by oils, greases, acetone, ether, benzene and other compounds, but not by water When trinitrotoluene is treated with alcoholic solution of potassium hydroxid, a deep pink color changing to purple and then to brown is produced, and this reaction is employed in testing for trinitrotoluene in urine, after the latter is treated to release the trinitrotoluene from its combinations, a rather complicated procedure

Trinitrotoluene can be absorbed to a dangerous extent by the skin, and as fine dust or as sublimate will reach the mucous membranes of the nose and mouth, or perhaps even the lungs, and may be swallowed with the secretions of the mouth, nose and throat It may be recovered from the feces unchanged in most workers, and in many from the urine, but only in combination Among the symptoms it produces are dermatitis, much like that produced by other irritants, increased by flushing and perspiration and by friction, gastritis, with abdominal pain, vomiting, constipation which is constant, flatulence and distention, and blood changes similar to those of dinitrobenzene poisoning, with the presence of methemoglobin, though cyanosis and breathlessness are less evident Cell degeneration is readily produced by trinitrotoluene, and when the liver is involved toxic jaundice results, though in only a few cases Evidence of gradual absorption is shown by pallor of the face and an ashen gray color of the lips, sometimes the lips and tongue are deeply cyanosed Jaundice may be conjunctival or general, and often appears suddenly during the first four weeks of exposure Liver dulness is variable, ascites is sometimes present, respiratory distress is not noticeable when the patient is in bed, and pyrexia has occasionally been observed in severe cases, but neither bradycardia nor pruritus is common Two deaths from anemia unassociated with jaundice have been reported, with reduction of red cells to one million, of unequal size, but no poikilocytes or nucleated reds Microscopic examination excluded pernicious anemia Death resulted from hemolytic aplastic anemia, the blood-forming marrow having been greatly reduced

Points of differential diagnosis are the characteristic appearance already described, the character and situation of the abdominal pain, and the presence of constipation and abdominal distention It may be confused with other gastric disturbances, and must be distinguished from tetryl and picric acid poisoning, the former staining the skin a yellow or apricot color, the latter a canary yellow or greenish yellow, both set up a dermatitis similar to that of trinitrotoluene, but the constitutional symptoms are not pronounced, and toxic jaundice from them has not been reported

Postmortem, the outstanding feature is atrophy of the liver, which in some cases is reduced to half the normal weight Microscopically, the greater part of the liver tissue is found to have undergone complete destruction, associated with proliferation of fibrous tissue The kidneys are large and icteric, the cortex bulges, the labyrinths are frequently yellow, there is engorgement of the pyramids, and cloudy swelling and fatty degeneration of the tubules

Treatment in the absence of jaundice is simple removal from contact, rest in bed for a day or two, a diet consisting of milk, milk puddings, fruit and green vegetables, demulcent drinks, such as barley water tea and coffee, for the constipation, vegetable laxatives and cascara, with a mixture containing sodium sulphate, potassium citrate and sodium bicarbonate as a routine measure In jaundice cases, absolute rest in bed is essential, milk diet, small in quantity at first, gradually increasing to 4 pints a day, the bowels must be kept loose, preferably by mistura alba (a mixture containing magnesium carbonate, magnesium sulphate and peppermint water) repeatedly given In jaundice with marked toxic symptoms the prognosis is grave Alkali-producing drugs, such as the citrates and bicarbonates, should be given to overcome the tendency to acid intoxication Rectal and intravenous saline injections have a place in the treatment of severe cases

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DISTURBANCES OF THE KIDNEYS

(*Continued from page 372*)

Nephritis

CLASSIFICATION

Were it possible absolutely to accept Fischer's theory of nephritis, namely, that an overproduction of acid in the body or an accumulation of acid in the kidneys is the usual cause of this condition, many complex problems connected with it would become simple If, as he believes, it were true that the edema is due to too much acid in the system, and that most of the uremic symptoms are due to cerebral edema, our understanding of the pathology and the treatment of these conditions would be clearer, but, unfortunately, the treatment which he sometimes recommends to overcome the supposed excess of acid may be hazardous Water, as he states, is undoubtedly the best diuretic, but it cannot be accepted that no other substances cause diuresis Carbohydrates in diabetics act as diuretics, while a number of drugs will cause diuresis in normal conditions of the kidney

Perhaps the best classification of nephritis is that offered by Oertel[69]

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[1] Trinitrotoluene Poisoning Med Press and Circular 1916 n s 10~, 534

[69] Oertel Horst The Classification of Nephritis, Arch Int Med June 1913 p 653

1 Simple nephritis
2 Degenerative and exudative nephritis
3 Degenerative and productive nephritis
4 Productive nephritis
  (*a*) Diffuse
  (*b*) Focal and patchy
5 Senile atrophy or nephritis due to arteriosclerosis of the kidney Senile kidney

1 The first class of nephritis is accompanied by all the classic symptoms of inflammation with exudate and with desquamation and proliferation of parenchyma cells in some cases Recovery may be complete

2 The second class shows degeneration and necrosis exudate with hemorrhage, proliferation of parenchyma cells and formation of casts in abundance

3 The third class shows not only degeneration and most of the signs and conditions of the second class, but also a production of fibrous tissue and shrinking of structure, with thickening of the renal arteries

4 The fourth class is identified by the development of new kidney-secreting structure

In the diffuse type of inflammation not only is new tissue formed, but also there is a growth of connective tissue and distortion of the tubules

In the focal form, hyaline swelling and fatty degeneration occur in the intima of the small renal vessels, causing impaired function of the parts of the kidney fed by these blood vessels, or, in extreme cases, actual obliteration, marked by a granular appearance of the kidney

5 The fifth class or arteriosclerotic kidney consists of a noninflammatory degeneration

While the foregoing classification is based on pathologic findings and may be difficult to interpret clinically, it is scientific and recognizes the well known interlocking and overlapping cases of nephritis An exact diagnosis of the pathology of a kidney cannot be made by the urinary or blood findings, we can determine the signs and symptoms and the amount of excretion and retention only at a particular date and hour Frequently we cannot accurately prognose the length of life of the patient, even when he is moribund

The old classification of parenchymatous and interstitial nephritis is not sufficient Most parenchymatous nephritis would probably be more aptly termed diffuse nephritis Probably no interstitial nephritis occurs without more or less parenchymatous degeneration, if not inflammation Possibly the senile sclerotic kidney may be termed more or less purely interstitial We may recognize the factors which tend to produce acute or chronic inflammation of the kidneys, and the factors which are most likely to cause a parenchymatous and diffuse or interstitial type

ETIOLOGY

The facts that albumin and casts are frequently found in the urine in various ailments, and that in incipient and advanced nephritis acute disturbances of the kidneys frequently occur have not been better demonstrated than by the findings of Brown and Cummins[70] in the cases of 7,000 patients admitted to the San Francisco Hospital, the majority of whom were men between the ages of 20 and 60 They found albumin and casts in 594 patients, although only thirty-eight of these were admitted for nephritis They found that venereal infections, the more serious general infections and alcohol played a prominent part in the previous history of chronic nephritis They draw the logical conclusion that a kidney once injured is later more susceptible to irritations

Localized nephritis is known to be caused by bacteria from some acute infection, pyemic in type, as with infarcts, or by a more chronic localization, as in tuberculosis Localized or general nephritis may be caused by some hidden chronic infection, as mouth or nose infections, or a more or less acute nephritis may be the result of an acute general infection, such as scarlet fever, diphtheria, pneumonia, cerebrospinal fever or smallpox All the above mentioned infections ordinarily are the sources of diffuse nephritis, perhaps primarily parenchymatous

Doubtless if the urine should be examined during the first stage of every acute infection, traces of albumin would frequently be found The backache and high fever accompanying these infections is probably due to kidney congestion, caused by toxins of the bacteria, or by the disturbance of metabolism, especially protein Probably, in the more simple general infections, the bacteria rarely reach or disturb the kidneys, but their toxins may affect these organs

In lead poisoning, in syphilis, in prolonged cardiac insufficiency in hypertension, in arteriosclerosis and in gout, although the nephritis may be more or less profuse, the interstitial form usually predominates Prolonged intestinal disturbances, liver insufficiency, repeated strenuous physical labor, and polyglandular (ductless gland) disturbances are apt to cause chronic disturbance and chronic inflammation of the kidneys Prolonged and repeated kidney congestion, due not only to cardiac insufficiency, but also to pressure from some abdominal cause, or to displacement of a kidney, tends to cause one or both kidneys to become infected with chronic inflammation Probably abdominal pressure during pregnancy is a frequent cause of this type of nephritis

The composition of the blood coming to the kidneys represents an important factor in the health of the kidney glands The chief facts to be considered in this respect are whether the blood contains the necessary nutriment, whether it carries elements causing dilatation or contraction of the kidney vessels, whether it carries an extra amount of waste products, drugs or foreign matter difficult of excretion or hard to metabolize or to change chemically into normal excretory products, whether the bulk of the blood coming to the kidneys is too great for the kidney structure to care for properly, or whether the amount of blood is insufficient to cause a proper kidney pressure both for nutrition and for excretion, making the kidney function normal As stated, metabolic, organic or bacterial toxins may irritate or erode the kidney cells and sooner or later cause nephritis

There doubtless is also a nervous control of the kidney circulation and of the kidney activity that at times plays an important part in an acute or chronic disturbance of the kidneys Surgical conditions in the abdomen may reflexly interfere with the kidney function, making kidney tests inaccurate, this is especially true of ureteral, bladder and pelvic disturbances Furthermore, disturbances of many glands, such as the liver, thyroid, suprarenals and pituitary, markedly change the work required of the kidneys

As abnormal, repeated heart strain injures the heart and blood vessels, so repeated overmuscular effort, by increasing the exertion of the kidneys, may injure them

Toxins or irritants absorbed from the intestine or from poisonous foods, cold storage foods, canned foods, or foods containing minute doses of boric acid or sodium borate may, by daily irritation, cause chronic nephritis Chemical irritants such as turpentines, phenols and many aromatic oils or synthetic drugs, under certain conditions, may cause inflammation of the kidney Too great an absorption of silver nitrate may cause acute nephritis, while prolonged use of mercury and arsenic may cause an acute or chronic form of this disease Chloroform and ether may cause temporary kidney irritation

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[70] Brown P K and Cummins W T A Study of the Etiology of Chronic Nephritis The Journal A M A March 11 1916 p 793

The kidneys generally respond to an increased demand on them by a dilatation of their vessels with an increased general blood pressure Following the ingestion of large amounts of protein or the circulation of irritants in the blood, an increased amount of blood flows through the kidneys in a given time and the excretion of urinary substances is increased, thus the blood is purified The person who is repeatedly poisoned continues for months in apparent health, entirely unaware of the slowly developing chronic changes taking place in his kidneys There comes, however, a day of reckoning, the kidneys, heart and blood vessels gradually work less harmoniously, and the kidney congestions result in chronic nephritis

If the close relation of the kidneys to the skin, relative to excretions is considered, many unexplained albuminurias and attacks of nephritis will be understood The excretion of solids by the skin is increased in this disease, although the total excretion is small

While acute nephritis caused by cold alone is probably very rare, it may be the exciting cause of an already existing subacute or chronic disturbance Chilling of the body at any time increases kidney activity, while warming of the body decreases it

Any disease of the skin which prevents normal perspiration is detrimental to the kidneys, whether caused by burning, erysipelas, scarlet fever, dermatitis exfoliativa, or by any other acute or chronic general inflammation of the skin The larger the area of skin affected, and the greater the inability to excrete water, the greater is the danger which threatens the kidneys The reverse is also true in chronic nephritis the immediate prognosis is more favorable when the skin is soft, moist and healthy, but is less favorable when the skin is dry and harsh

Ether and chloroform anesthesia, especially the latter, which always causes kidney disturbance, by repeated use become a positive menace to the kidneys

Diabetes may be a causative factor in nephritis, as frequently excessive amounts of nitrogenous food are consumed Syphilis may also be an etiologic factor, either per se or through the arsenic or mercury treatment employed to cure it

Chronic alcoholism is perhaps an indirect cause of nephritis since it disturbs the circulation, the liver and the digestion Tobacco, by causing an abnormal blood pressure which finally injures the heart, becomes an indirect cause of nephritis

The recuperative power of the kidneys and the harmless nature of occasional urinary symptoms of nephritis must, however, be recognized Hence, extreme care should be used in diagnosing a case of nephritis When a case is thus diagnosed it should be remembered that if one fourth of the kidney structure is healthy, this is sufficient to prevent serious symptoms Furthermore, diseased parts may recover, or even if hopelessly degenerated, neighboring parts of the kidney may hypertrophy and carry on the extra work

To sum up, heart and blood vessel insufficiency is a common forerunner of inflammation This congestion may be the result of lordosis, or of a floating kidney Prolonged exertion and hard work is a common cause of congestion and albuminuria, as is also profuse sweating, which increases the viscosity of the blood by dilating the kidney vessels [71]

Prolonged low blood pressure and a reclining position associated with serious illnesses, such as typhoid fever and tuberculosis, are detrimental to the kidneys, resulting in extended passive congestion Hence, the patient's position in bed should be changed frequently, just as soon as he is able to endure it

Albuminuria, which frequently follows operations, may be due to the anesthetic, to an abnormal position long retained, such as that in pelvic operations, or to the two combined Hence, anesthesia and abnormal positions on the operating table should be of as short duration as is compatible with efficiency and accuracy of technic

An important fact to bear in mind is that one attack of nephritis apparently breaks down the resistance of the kidneys, and that frequent attacks of albuminuria, which is generally caused by renal congestion, leaves them susceptible to real nephritis

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies A copy of the rules on which the Council bases its action will be sent on application -W A Puckner, Secretary

TABELLAE DULCES ARISTOCHIN (WESTERN), 1 GR—Each tablet contains aristochin 1 grain, with cocoa, sugar and saccharine as vehicles

(Accepted for inclusion with the appendix to New and Nonofficial Remedies)

Prepared by Western Chemical Company, Inc , Hutchinson Minn

TABELLAE DULCES HEROIN (WESTERN), 1/100 GR—Each tablet contains heroin, 1/100 grain, with cocoa, sugar and saccharine as vehicles

(Accepted for inclusion with the appendix to New and Nonofficial Remedies)

Prepared by Western Chemical Company, Inc , Hutchinson Minn

TABELLAE DULCES NOVASPIRIN (WESTERN), ¼ GR—Each tablet contains *novaspirin*, ¼ grain, with sugar, starch, liquid petrolatum, saccharine, curcuma and oil of lemon as vehicles

(Accepted for inclusion with the appendix to New and Nonofficial Remedies)

Prepared by Western Chemical Company Inc , Hutchinson Minn

TABELLAE DULCES TANNALBIN (WESTERN), 1 GR—Each tablet contains tannalbin, 1 grain, with cocoa, sugar and saccharine as vehicles

(Accepted for inclusion with the appendix to New and Nonofficial Remedies)

Prepared by Western Chemical Company, Inc , Hutchinson Minn

TABELLAE DULCES TERPIN HYDRATE WITH HEROIN (WESTERN), 1/100 GR—Each tablet contains terpin hydrate, ½ grain, and heroin, 1/100 grain, with cocoa, sugar and saccharine as vehicles

(Accepted for inclusion with the appendix to New and Nonofficial Remedies)

Prepared by Western Chemical Company Inc , Hutchinson, Minn

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[71] Sollmann Am Jour Physiol , 1905 **13**, 24

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SATURDAY, FEBRUARY 10, 1917

THE EARLY DIAGNOSIS OF WHOOPING COUGH BY CULTURAL METHODS

The statement is frequently made that not enough is being done to control and reduce the spread of whooping cough Thus Morse[1] has recently voiced a strong demand for increasing efforts in this direction, and he urges an educational campaign to convince physicians and the general public of the seriousness of whooping cough and of the necessity of a much stricter enforcement of notification and isolation than is now practiced It is accepted that the disease is caused by a small bacillus discovered by Bordet and Gengou, which is transferred in the sputum from the sick to the well This bacillus is probably present in the respiratory tract from the earliest moment of infection, and it is demonstrable in the sputum long before the diagnosis of whooping cough can be made from the symptoms

In order to reduce the chances for spreading pertussis, the disease must be recognized much earlier than is now the rule, and the patients properly isolated while they are still in the catarrhal stage when, in fact, they are the most infectious In the early stages of the disease there are not available any easy short cuts to diagnosis by way of immunity reactions because the complement-fixing and other immune substances have not yet developed sufficiently The whooping cough bacillus is hardly distinguishable from the influenza bacillus on direct microscopic examination The only remaining method now known by means of which a definite diagnosis can be made in the early stages of whooping cough is the isolation of the bacillus from the sputum by cultural methods Morse apparently recognizes that this is quite true, but dismisses the method as too difficult and complicated for practical purposes, a conclusion from which one might well differ because the technical procedures are certainly no more difficult and no more complicated than many now in daily use for practical ends

Chievitz and Meyer[2] in Copenhagen have been studying the sputum in whooping cough by cultural methods They find the bacillus present in practically all cases when the catarrhal stage is well established In making the cultures it is necessary to fish out mucopurulent flocculi from the last portion of the expectorate, to wash them in sterile salt solutions, and rub them over the surface of the medium (blood-potato-agar) The characteristic colonies resemble minute drops of mercury — polished and glistening — and appear after an incubation of about four days The final step is agglutination of the bacilli in the colonies by the serum of rabbits or horses immunized with *Bacillus pertussis* In very small children or when there is no sputum the Danish workers obtain good results by making the patients cough against plates of culture medium held a few inches away from the mouth This simple way is of value especially at the very beginning of the infection When the attack has lasted about four weeks or so, cultures are usually no longer obtainable, and the Danish regulations now permit release from quarantine after four weeks and two negative cultures

It appears, then, that we have it in our power to secure the benefits which would result from the diagnosis of whooping cough earlier than can be made from the symptoms alone To repeat, the cultural diagnosis of whooping cough in the early stages, when it is most infectious and isolation would accomplish the most, does not appear to be so inherently difficult as to be really impracticable Arrangements should be made for the introduction and use of this early diagnosis by culture because thereby sickness can be prevented and life saved

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[1] Morse J L Whooping Cough the Measures to be Taken for Its Control and Prevention Boston Med and Surg Jour, 1916 **175**, 723

[2] Chievitz and Meyer Ann de l Inst Pasteur 1916 **30**, 503

NOCTURIA

The efficiency of the functions of different parts of the alimentary tract have long been studied experimentally and for purely diagnostic purposes by the use of test meals and test diets It has lately been proposed to investigate somewhat similarly the presence or absence of impairment of renal function, both qualitatively and quantitatively, by the employment of a "nephritic test meal" The application of this idea, the clinical development of which we owe primarily to Hedinger and Schlayer,[1] has recently been carried out extensively by Mosenthal[2] It has been ascertained that the nephritic test meal, when duplicated on the same patient, yields identical results, provided the clinical condition has not changed As selected by Mosenthal, the dietary contains approximately 13 4 gm of nitrogen, 8 5 gm of salt, 1,760 c c of fluid, and a considerable quantity of purin material in the form of meat, soup, tea and coffee

The most important findings in the urine of healthy persons on the nephritic test meal are exemplified in the differences between the day and night urines Whatever the quantity of urine excreted during the day by such normal persons, it is found that the night specimen varies within very narrow limits It is high in specific gravity (1 016, but usually 1 018 or higher), high in its concentration of nitrogen (above 1 per cent), and small in volume (400 c c or less), regardless of the quantity of fluid ingested or the amount of urine secreted during the day period

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[1] Hedinger and Schlayer Deutsch Arch f klin Med 1914 **114** 120

[2] Mosenthal H O Renal Function as Measured by the Elimination of Fluids Salt and Nitrogen and the Specific Gravity of the Urine Arch Int Med November 1915 p 733

Nocturnal polyuria, or nocturia, on the other hand, is one of the earliest symptoms of renal disease, according to Mosenthal By this is not meant a frequent voiding of urine — a "nocturnal pollakiuria" — not accompanied by an increase in the total usual volume of 400 c c, but rather an increased volume of night urine True nocturia may be found when few other signs of nephritis are detectable The specific gravity and the nitrogen concentration of the night urine are lowered as soon as the kidney function becomes involved When the nephritis becomes severe and chronic, an advanced degree of functional inadequacy of the kidney is indicated by a markedly fixed and low specific gravity, a diminished output of both salt and nitrogen, a tendency to polyuria, and a night urine showing an increased volume, low specific gravity and low concentration of nitrogen Such functional pictures, we are told by Mosenthal, are not confined to nephritis Diminished renal function is present, however, and its cause must be sought for in many directions — the urinary passages, the blood, or the kidney itself

The fundamental features of the ominous nocturia also apply to other conditions than those established by this special nephritic test diet Addis and Watanabe[3] have recently collected numerous data in regard to the volume of urine of persons on a constant water intake They find that the volume of urine in normal persons on a constant diet with the same water intake is extremely variable for any single day or part of a day The average volume of the last three days of the diet when the water intake was 2,070 c c varied in twenty individuals from 1,013 to 1,712 c c for a twenty-four hour period, from 684 to 1,195 c c for the first twelve hours of the day, and from 501 to 788 c c for the first eight hours of the day The percentage of the twenty-four hour volume excreted during the twelve hours of the night did not exceed 47 per cent in any subject, when the volumes for the last three days of the diet were averaged When the kidneys are diseased, however, the volume of urine passed at night is often larger than the day urine

These studies are of particular value in furnishing criteria for what constitutes a true nocturia, that is, an abnormally high proportion of night urine With this established by some dependable method, the existence of renal imperfection may be suspected even when other signs more familiar have not made their appearance As in so many other departments of medical practice, here, too, absolute rules applicable to every case cannot be laid down There are too many complicating variables in the human physiologic mechanism to permit the application of hard and fast directions Christian[4] has noted that in patients with pernicious anemia the disease is accompanied by a disturbance of renal function, as measured by renal dietary tests, which is similar to that found in patients with advanced chronic nephritis In these patients there is no evidence of chronic nephritis, and the disturbance appears to be due to the anemia, decreasing with the subsidence of the severity of the anemia unless this is maintained so long that a permanent disturbance of renal function ensues Christian properly points out that caution is required in the interpretation of the results of such tests in patients supposed to have nephritis For, he states, if a patient with moderate nephritis, as indicated by other tests and by symptoms, happened to have a fairly severe anemia, the latter factor might give to the picture of renal excretion a fixation suggestive of advanced nephritis, and lead to a prognostic interpretation which was unjustifiably poor Consequently, it will be well to consider the element of anemia when drawing conclusions from dietary renal tests applied to patients with nephritis, though it is not probable that this will prove a complicating factor in many cases, for usually the degree of anemia in patients with nephritis is slight — much less than their pallor would suggest

THE VENEREAL DISEASE PROBLEM—II

Recommendations of the British Royal Commission on Venereal Diseases

Among the topics considered by the comprehensive report of the Royal Commission on Venereal Diseases[1] are the prevalence and distribution of the venereal diseases, the unreliability of statistics as shown by death registration, the effects of the venereal diseases on those primarily infected and on their offspring, and the economic effects of the venereal diseases On the question of notification the commision reports adversely, saying

> We think it clear that if a case for notification of venereal diseases is to be established it must be based upon the assistance which notification would afford to the treatment of the individual, and the consequent protection of the community, and not on the ground that it would facilitate general preventive measures The main objection which has been urged against notification of venereal diseases is that it would actually do more harm by deterring people from seeking treatment, and by driving them more than ever into the hands of unqualified persons

The commission believes it possible that the situation may change after the general measures for treatment which it has recommended have been for some time in effect, and after the public has been educated in the venereal diseases, but it does not regard notification as now practicable. It thinks that anonymous notification would not be satisfactory. The report lays stress on the need for increased attention to the venereal diseases in the scheme of medical education. It urges the necessity for opportunity for special study of the venereal diseases, and suggests that one of the functions of the clinics for venereal diseases which it recommends shall be the affording of opportunities for study to medical students and practitioners. The commission believes it is important that every effort should be made to enlighten the public as to the seriousness and the contagious dangers of the venereal diseases and their distressing after-effects, and that there should be a franker attitude toward these diseases. It holds that children under 14 are unfitted for this instruction. To older children it recommends such instruction, but points out the difficulties and the objectionable character of many well intentioned books and pamphlets which have been issued on the subject. It considers that no such publications should be countenanced by educational authorities unless they bear authoritative endorsement. In the case of England it recommends that such publications should have the endorsement of the National Council for Combating Venereal Diseases. The commission gives its endorsement to the various organizations which have been formed for promoting the welfare of youth, for teaching sexual morality and for developing character, and adds, "The fact that we recommend that free treatment should be provided for all sufferers makes it in our opinion, all the more necessary that the youth should be taught that to lead a chaste life is the only certain way to avoid infection."

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[3] Addis T and Watanabe C K The Volume of Urine in Young Healthy Adults on a Constant Diet Jour Biol Chem 1916 27, 267

[4] Christian H A Renal Function in Pernicious Anemia as Determined by Dietary Renal Tests Arch Int Med October 1916, p 429

[1] The Venereal Disease Problem—I editorial, The Journal A M A Feb 3 1917 p 375

The main emphasis of the report is placed on the necessity for early and accurate diagnosis and for early and continuous treatment. The commission finds that present opportunities for diagnosis and treatment are entirely unequal to the needs of the situation. In recommending improvement in the facilities for treatment it considers that existing institutions should be utilized as far as possible, that new institutions should be founded only when it is unavoidable, and that the new clinics should be part of general hospitals, and not stigmatized by being devoted to venereal diseases alone. It is convinced that existing hospital facilities, with necessary extensions in certain localities, would furnish all of the institutional needs of the situation, but it believes that no adequate system of treatment is possible unless responsibility for it is assumed by the state. The institutions provided must be available for the whole community. To that end they should be made accessible, and evening clinics should be provided. They should be free from embarrassing restrictions. Patients should be given treatment regardless of their residence, and should be free to go to clinics outside of their own district. Persons able to pay should, if possible, be sent to their physicians, but even they should not be refused treatment in the public institutions if they are unwilling to go to a private physician. It is pointed out that treatment to be effective in controlling the public dangers of the venereal diseases must be continued until a cure, or freedom from infectiousness is attained, and that effective provisions must be made for seeing that treatment is continued through the infectious period. Compulsory treatment is suggested for the delinquent.

The commission believes that any government scheme which is carried into effect must rely largely on the education and the cooperation of the medical profession, and must depend in the end for its success on the general practitioner, who constitutes "the first line of defense in the community." The report emphasizes strongly the great damage which is done in the treatment of venereal diseases by unqualified practitioners, by drug store prescribing, by quacks and, as well, by less vicious but ignorant practitioners of special sects, and strict measures to prevent such treatment are recommended. The commission believes that all advertising of remedies for venereal diseases should be prohibited by law.

Readers who have noted the first steps in this campaign will realize that the commission has done its work well. On many hotly debated questions it has offered a judicial, conservative opinion. Its findings are not purely local, but show a consideration and a broad grasp of human nature, economic conditions and social problems that could be held only by so representatively constituted a body as this commission was.

THE PROBLEM OF KIDNEY FATIGUE

In physiology and medicine, as in other sciences, the introduction of new methods of observation and experiment usually leads to new facts which may necessitate a revision of our older theories. In former days some of the intellectual disciplines advanced almost solely by the single method of accumulating new data. The older natural history thus at first contented itself largely with the description of more and more species. At length however, there came a time when the storehouse of observations had to be inventoried, and its contents arranged in some orderly fashion. The procedure of taking stock of the known always raises questions which carry us into the field of the unknown.

The study of the distribution of the so-called waste products of the body, made possible by improved chemical methods of blood and tissue analysis, has been fruitful in enlarging the horizon of our knowledge. Urea, creatinin, uric acid and other familiar urinary components can now be followed back farther on their path from the threshold of formation in the metabolic transactions of the organism. It is not so long ago since the failure of these substances at times to appear in the urine in expected amounts gave rise to the conclusion that, owing to some renal insufficiency, they were being accumulated in the blood itself Retention and uremia were satisfactory expressions to account for a diversity of pathologic symptoms in which defective kidney function was believed to play a part Today we can advance beyond the stage of mere guesswork in many of these cases Renal function can be tested quite accurately in a number of ways, furthermore, the blood can be examined, without any serious technical obstacles, for the suspected evidences of unexcreted waste products

Apparently unlike responses of the kidneys to tasks of excretion imposed on them experimentally by investigators have led to the assertion of the existence of what might be called "kidney fatigue" [1] This idea is somewhat in harmony with the observed fatigue or temporary exhaustion of other glandular structures, such as the pancreas and salivary glands, in which the outpouring of some specifically accumulated product is assumed to entail time for its replacement by cellular synthesis

It is by no means so certain, however, that an equally active and immediate part in the work of urine formation is played by the kidney cells Without denying their physiologic cooperation, it must be admitted that physical and physicochemical processes serve to promote no small portion of the renal performance So far as such changes are concerned, there is little occasion to expect any signs of fatigue This is in accord with the belief of Ambard that the kidney manifests no intrinsic variability in function He maintains that if the concentration in the blood and in the urine of the substance excreted is known, the action of the normal kidney may always be predicted with mathematical accuracy According to Ambard there exists, for any person, a constant relation between the concentration of urea in the blood and its excretion in the urine A study of Ambard's "constant" under conditions of extreme variation of functional demands may therefore be expected to give evidence for or against the existence of renal fatigue

The work of Schlayer and others on water and chlorid excretion by the kidneys has been interpreted as indicative of a wide variability in kidney action even under the same conditions Addis and Watanabe[2] have approached the debated question by a study of the rate of excretion of urea administered to young healthy adults who were on a constant diet carried through in order to obtain detailed information as to the range of variation in the function of the normal kidney under uniform conditions In a large number of experiments on such persons, they found no evidence of variability in kidney action in the work of excreting preformed urea added to a constant diet Such variation as was found in the amounts of urea excreted could be fully accounted for as arising from extrarenal factors It is concluded, therefore, that the normal kidney under constant conditions is characterized by the possession of a high degree of constancy of function The rate of excretion of the administered urea during successive periods of the twenty-four hours showed that the repetition of large doses of urea did not elicit the condition which has been described as "kidney fatigue" A fraction of the urea which was administered remained in the body after twenty-four hours This urea was not retained because of any failure on the part of the kidneys to eliminate it, for the amount retained was no larger when 40 than when 20 gm of urea were taken

In connection with these experiments it should be recalled that administered urea is not accumulated in the blood alone, but exists, as Marshall and Davis[3] have shown, for the greater part distributed to the tissues, from which it is gradually withdrawn for excretion by the kidneys Indeed, the major part of ingested urea soon enters the tissues, so that its concentration in certain organs is approximately equal to its concentration in the blood The tissue reservoir, so to speak, for the storage of large quantities of urea temporarily present in the body has not been known until quite recently It serves most advantageously as a regulatory factor to avert undue concentration of urea at any moment in any particular locality Retention of this substance may accordingly be possible because it is never brought to the kidneys for excretion But even when exceptionally great loads are imposed on the kidneys, as occurred in the successive increase in urea-eliminating demands over several days in the experiments of Addis and Watanabe, the existence of a condition approximating fatigue of these organs could not be detected

EPIDEMICS OF TYPHOID FROM WATER SUPPLY

A number of typhoid epidemics have been reported in this country which have been due to the contamination of a good public water supply with water drawn privately from an auxiliary source, i e, bad water has been mixed with good in a double system of connected pipes The purpose of the dual system of water piping in its origin was largely economical It has been the policy of fire insurance and underwriter companies to require of their industrial risks the instalment and maintenance of two systems of fire service, one from the public water supply, the other from an independent source The aim of this requirement is to afford additional fire protection by automatic sprinklers and the like in case either system is put temporarily out of commission. In many parts of the United States such a double system of water piping in factories has existed for more than twenty-five years. It is natural, perhaps, that in most instances little attention should be paid to the sanitary quality of the secondary private supply, designed only for emergency use, and that this supply should be obtained as a rule from the most convenient source, often a highly polluted stream on which the factory is situated. The necessity for the separation of the two systems, however, appears to have been generally recognized, but it was for a long time supposed that the mixing of the waters could be prevented by check valves which were placed in the piping system.

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[1] Lindemann W Die Funktionen der Niere Ergebn d Physiol, 1914 **14** 652

[2] Addis T and Watanabe C K The Rate of Urea Excretion II The Rate of Excretion of Administered Urea in Young Healthy Adults on a Constant Diet Jour Biol Chem 1916 **27**, 249

[3] Marshall E K Jr and Davis D M Urea Its Distribution in and Elimination from the Body Jour Biol Chem 1914, **18**, 53 The Distribution of Urea in the Body, editorial, THE JOURNAL A M A, Sept 26 1914 p 1115

One of the first events to shatter confidence in the efficiency of the check valves was a typhoid outbreak in Lowell, Mass., in the summer of 1903. What happened at that time is told in the report of the Lowell Water Board:

> On Saturday, July 18, there occurred a fire on the Merrimack Corporation, at which the Locks and Canals reservoir was drawn upon to such an extent that the pressure in their pipes went below the city pressure. Consequently, the check valves between the two system opened, and the city water flowed into the Locks and Canals' pipes until the fire was extinguished. Some time after the Locks and Canals Company started pumping it was found that their reservoir did not fill, and on investigation it was found that a check valve situated on the Massachusetts Corporation near the corner of Canal and Bridge streets had failed to close, and water from the Locks and Canals was flowing into the city mains. Within a few days an epidemic of sickness appeared resembling cholera morbus, and later developed many cases of typhoid fever.

It seems now to be generally admitted by engineers that even modern check valves are not to be depended on. In the Lowell case the check valve was made especially for the Locks and Canals Company, was said to be substantial and well constructed, and had been found in supposedly good working condition one week previous to the fire. The general reliability of check valves is apparently not very high. One water works superintendent expresses his opinion feelingly: "Any one who has ever had much experience with check valves knows that they are an invention of the devil."

Outbreaks of water-borne typhoid caused by the dual water pipe system are far too common. They have been reported among other places at Winnipeg and Toronto, at Omaha, at Circleville, Springfield and Van Wert, Ohio, and have been suspected in many other localities. In Philadelphia, in 1913, numerous typhoid cases developed in a section of the city supplied with the excellent public water from the Torresdale filtration plant, at the same time that other parts of the city supplied from the same source were typhoid free. Bacterial examination of the tap water in the affected district gave evidence of contamination. Inspection of manufacturing establishments along the Delaware River water front disclosed the existence of a number of factories having dual connections with the polluted river water. When complete severance of the filtered water supply from the private source was enforced, typhoid diminution followed.

One of the most recent epidemics attributed to this cause occurred in September, 1916, at Elgin, Ill., where the employees of a large watch factory suffered severely. This disastrous outbreak has had an especially instructive sequel since under the Illinois Compensation Act the death claims — eighteen in number — against the watch company have been settled through the agency of the State Industrial Board. The action of the manufacturing corporation seems to have been exemplary since the very onset of the epidemic; not only have the death settlements been adjudicated with the complete cooperation of the factory officials, but also during the progress of the epidemic the medical and hospital responsibility and expenses were promptly assumed by the watch company. It is estimated that the actual outlay by the manufacturer in behalf of the typhoid sufferers will be approximately $100,000.

There is little doubt that typhoid cases which can be traced directly to the drinking water furnished by an employer come properly within the provisions of such laws as the Illinois Compensation Act. In such cases it can be reasonably maintained that the employee is subjected to a risk "peculiar to the employment and not common to the neighborhood." A significant problem is raised for manufacturers if the drinking of infected water furnished by the employer can be made one of the causes of injury or death for which the employer must pay compensation.

There seems today sufficient reason for demanding that under no circumstances shall a connection be permitted between the pipes of a public water supply and a polluted source. Complete and absolute separation of the private and public pipes must be insisted on. It should not be difficult to solve the problems of adequate fire protection and industrial convenience without jeopardizing the public health. This matter may well receive more consideration from health authorities and other public officials than is given it at present. We are not aware that the sanitary quality of a factory water supply is given adequate attention by factory inspectors. Experience has shown, however, that the private water supply of an industrial establishment is too often the cause of preventable illness and death, and is a health hazard to which searching attention should be given. Health officials and factory inspectors everywhere should ferret out these dual water connections and summarily eliminate them.

A Motto for a Pathologic Amphitheater.—The dissecting room at Toulouse is decorated with an inscription which would be singularly apt for a necropsy theater: *Hic locus est ubi mors gaudet succurrere vitae*. "This is the place where death delights to help life."

Current Comment

THE OUTPUT OF CALCIUM AND MAGNESIUM IN MAN

It can scarcely be doubted that chemical pathology has many chapters in which perversions of the metabolism of the alkali earths, calcium and magnesium, are concerned in some degree The role of these elements in the living body is hardly known in even its most superficial aspects, and whether we happen to have in mind the bones and their development, the blood, the endocrine glands, the nervous tissues, or some other structure, in each case calcium or magnesium are as yet mere incidents in the story of some interesting phenomenon Whether an undue proportion in which they chance to be found is the result or the underlying cause or merely an unrelated incident in the problem under investigation is rarely ascertainable Calcium and magnesium enter the body with the food and leave it with the excreta The paths of excretion are diverse, but we scarcely know the details of even a single feature of the transit of these two important mineral nutrients through the organism A recent writer[1] was well justified, therefore, in saying that it would be fortunate if calcium metabolism would receive as much attention as basal metabolism has lately received It seems axiomatic also that, if we would know more about such diseases as osteomalacia, rickets, osteoporosis and infantilism, we must first have forthcoming sufficient data on the normal behavior of the body with which to compare the findings in these pathologic states It is not always realized to what a large extent calcium leaves the body with the feces The average daily urinary and fecal output of calcium calculated as oxid over periods of five days for five apparently normal persons, ranging in age from 13 to 70 years, was

Urinary excretion	0 175 to 0 619 gm of CaO
Fecal excretion	0 413 to 0 801 gm of CaO
Total daily excretion	0 588 to 1 420 gm of CaO

The predominant belief that the output of calcium exceeds that of magnesium in the urine appears to need revision According to Nelson and Burns,[2] who examined twenty-five apparently healthy persons living on a mixed diet, in seventeen the daily output of calcium was larger than that of magnesium, and in eight, the magnesium predominated over calcium The largest amount of calcium (calculated as oxid) excreted in one day was 0 488 gm , of magnesium (calculated as oxid), 0 416 gm The smallest amount of calcium was 0 099 gm , of magnesium, 0 118 gm Either calcium or magnesium may therefore be excreted in the larger amount in the healthy person The preponderance of one element is as indicative of normal behavior as the other Furthermore, the results indicate that each person exhibits a constant behavior as to whether calcium or magnesium shall be greater in amount in the urine voided In the case of the three persons examined over the five day periods, of nineteen determinations only two showed a daily output of calcium exceeding that of magnesium Such statistical facts are the beginnings of what ought to become in the not too distant future a comprehensive investigation of the metabolism of the mineral nutrients

MEDICAL PREPAREDNESS

While the severance of diplomatic relations with Germany does not necessarily mean war, it unquestionably brings us, as a nation, to a point at which a state of war with a European nation must be considered as a possibility As usual in times of general excitement, many of our newspapers are filled with rumors, as many of our citizens are filled with hysteria In emergencies, physicians, of all men, are expected to keep cool and to be able to act efficiently This is a duty of the profession as a whole, as well as of individuals If war comes, the role of the medical profession will be an important and responsible one That these responsibilities will be assumed without hesitation and borne with credit is beyond question In case of conflict with the Central Powers, it is difficult to see, under present conditions, how land forces could be employed, at least in the near future Service would probably be limited to work on shipboard For this, the Bureau of Medicine and Surgery of the Navy has its regular corps, as well as the Navy Medical Reserve Whatever may be the outcome of the present situation, the medical profession, and especially the younger men, should understand that the Army Medical Corps needs more men and that the navy is anxious to secure additional medical officers Those physicians not needed or adapted to regular military service should at least affiliate themselves definitely with the national Red Cross, through its various local branches, and prepare themselves, either now or for the future, to be of service

THE RESPONSE OF A SINGLE KIDNEY TO EXCRETORY STRAIN

The capacity of one of various paired organs, notably the kidneys, to execute satisfactorily the functions which are ordinarily shared by the two organs has often been demonstrated One eye, one lung or one kidney frequently fills suitably the ordinary needs of the individual deprived of the other organ After ligation of one ureter, or extirpation of one kidney, the remaining kidney occasionally functions even more efficiently than both kidneys before the operation Under extraordinary needs, however, the limit of working capacity most readily manifests itself Addis and Watanabe,[1] taking a somewhat arbitrary index of functional capacity, have demonstrated this ability anew The work the kidney was called on to do in their experiments was represented by the urea in the blood The work it did was evidenced by the urea in the urine Renal capacity was represented by the ratio between the work done and the work to be done This was studied before and after ligation of one ureter whereby one kidney was excluded from participation in the excretory process Extra renal work was supplied by injections of urea into the subject When no urea was given there was no decrease in the renal capacity because of the extirpation The added strain was within the capacity of the remaining kidney When the work to be done was greatly increased by the injection of urea, however, the strain which before operation had stimulated both kidneys to greater efficiency was too much for the remaining kidney, its maximal rate of work was less than the rate of increase in the work to be done, and there was a consequent decrease in the ratio This outcome, they point out, illustrates an important principle in the measurement of kidney function It shows that function may be entirely normal under ordinary conditions, and yet not so under strain The administration of a large quantity of urea before the renal capacity is determined not only has the advantage of tending to equalize the experimental conditions, it may also bring to light latent deficiencies The phenolsulphonephthalein test fails to do this Representing, as it does, the excretion of a minute amount of a foreign substance, no strain is imposed by this test on the capacity of the kidneys Its main value lies in indicating the presence and perhaps the degree of pronounced renal disease Doubtless some other test of a type like the experimental one just reviewed, which will place a strain on the kidney tissue in excreting an unusual amount of some normally present catabolite, such as urea, will better serve for the diagnosis of a latent defect A further search in this direction may therefore seem worth while

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[1] Nelson C F and Williams J L The Urinary and Fecal Output of Calcium in Normal Men Together with Observations on the Hydrogen Ion Concentration of Urine and Feces Jour Biol Chem , 1916 28, 231

[2] Nelson C F and Burns W E The Calcium and Magnesium Content of Normal Urine Jour Biol Chem 1916 28, 237

[1] Addis T and Watanabe C K A Method for the Measurement of the Urea Excreting Function of the Kidneys Jour Biol Chem , 1916, 28, 251

THE SARGOL VERDICT — AN INSPIRATION

The Sargol verdict, briefly referred to under New York news last week, is one of the most encouraging incidents in the movement toward truth in advertising Sargol was a nostrum of the get-fat-quick variety, as an alleged "flesh builder" it was advertised extensively and intensively by its exploiters Two facts it had in its favor it was not advertised, directly at least, for the cure of disease and it contained no dangerous or habit-forming drugs The chief, if not the only, objection to the nostrum was the simple fact — now a matter of court record — that its sale was an outrageous and impudent fraud To one not familiar with the curious mental slant of certain advertising managers this last objection might seem all-sufficient to bar advertisements of Sargol from all decent newspapers and magazines Not so! The attitude of some newspaper publishers on the subject of "patent medicine" advertising is this

"Does the preparation contain any habit-forming or dangerous drugs?"

"No!"

"Then take the advertisement"

Other publishers add another question

"Is the product recommended for serious diseases?"

"No!"

"Then the copy is acceptable"

The fact that a nostrum is sold under claims that are obviously or demonstrably false is brushed aside with the sophistry that claims made for "patent medicines" are "matters of opinion!" That Sargol passed muster on the two questions just propounded doubtless explains why many newspapers and magazines sold their space to the exploitation of this medical fake From a legal point of view the Sargol case was remarkable in that the essential question involved was fraud — not danger to the public health, not a violation of some drug law — just simple, elemental fraud! The case, which was a criminal one, lasted thirteen weeks, the defendants, who were shown to have made over half a million a year, had the wealth and the influence of the nostrum fraternity behind them Yet the Government won! Attorney F J Cregg and his associates, on whom fell the burden of protecting the public, can justly feel proud of having performed a notable public service Especially will the ever-growing army of men who believe in honest advertising rejoice in the outcome of this case For it means that we are brought materially nearer the time when the man with a worth-while product and a desire to sell it honestly will not be handicapped by having his goods placed in juxtaposition with confidence-destroying humbugs, medical or otherwise

PIDAN — AN ORIENTAL FOOD

Food conservation is not a novelty which has come into vogue with the introduction of cold storage plants or chemical preservatives All sorts of procedures for desiccating, smoking, pickling and otherwise handling perishable foods have been known almost from time immemorial Edible products are often saved from spoiling by being converted into new forms of food materials, as cheese is prepared from milk, or catsup from tomatoes The Chinese and other Oriental peoples preserve eggs in an analogous manner by making an altered product out of them This food material, known as pidan, has recently received an extensive examination in the laboratory of food chemistry of the Department of Home Economics at the University of Chicago[1] Pidan is made on a factory scale from ducks' eggs The latter are kept in an infusion of black tea, lime, salt and wood ashes — obviously an alkaline solution — for nearly half a year, much as eggs are preserved in solutions of sodium silicate in this country They are then drained and coated with rice hulls, whereupon they are ready for the market The taste of the pidan is characteristic and the odor markedly ammoniacal There is a tendency for uninformed persons to class such products unreservedly with what are commonly termed rotten eggs This may not be justifiable Pidan has no odor of hydrogen sulphid and, we are assured, does not closely resemble so-called decomposed eggs Noteworthy chemical changes do, however, attend the long storage process in the formation of pidan The Chicago investigators state that water in large quantities has been transferred from the white to the yolk, and water has been lost from the white to the outside The ash and the alkalinity of ash have increased in a way similar to that of other eggs preserved in alkali The ether extract has decreased and its acidity is high Both total and lecithin phosphorus have decreased The non-coagulable nitrogen has increased and also the ammoniacal nitrogen, the latter to an extraordinary degree, and the amino nitrogen is high From these changes the conclusion is drawn that decomposition of the egg protein and the phospholipoids has taken place The production of pidan from the fresh eggs is probably brought about through the agency of the alkali, bacteria and enzymes Like cheese, the product is eaten without being cooked

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[1] Blunt Katharine, and Wang, C C Chinese Preserved Eggs—Pidan Jour Biol Chem 1916 28, 125 abstr THE JOURNAL A M A Jan 6 1917, p 66

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest such as relate to society activities new hospitals education public health etc)

CALIFORNIA

Personal—Dr Edwin J Boyes, Oakland, was seriously injured in a collision between a Southern Pacific electric train and his automobile in Oakland

Book Night—The San Diego Medical Library held its annual 'Book Night" January 30 Each member was asked to contribute at least one textbook on medicine

Proposed Consolidation of State Boards—A bill introduced in the senate proposes to abolish the state boards of dental examination medical examination, optometrists and embalmers and to consolidate them with the state board of health This would mean the saving of about $35 000 a year to the state The act also provides for three lay members on the state board of health, who shall receive a salary of $2,400 a year

Psychopathic Hospital Urged—A bill prepared by the state board of health carrying with it an appropriation of $500 000 provides for the establishment of a state psychopathic hospital to be located near the University of California Medical School in San Francisco to be governed by the university regents with the professor of psychiatry as ex officio director The hospital is to provide not only a research laboratory but treatment for all patients requiring special or intensive study for a short period

ILLINOIS

Personal—Dr William L Hanson, Belleville, has left for England where he has received an appointment in the British Hospital Medical Service

Tuberculosis Survey—The Illinois Tuberculosis Association is arranging for a tuberculosis survey of LaSalle Adams, Morgan, McLane, Champaign, Livingston, Ogle and King counties

Proposed Consolidation of Boards—Bills reorganizing the state executive department in accordance with the plans of Governor Lowden have been introduced in the house and senate Under the proposed plan the department of registration and education is to include the bureau of registration, which will have charge of the licensing of physicians, dentists, pharmacists, optometrists, barbers, nurses and all other members of professions and trades for whom state certificates are necessary The bill also transfers the state food commission from the department of health to the department of agriculture

Chicago

Personal—Dr Lowell F Ingersoll was run over by a street car, January 22, and sustained severe injuries of the foot

Heat Stroke Research—The directors of the Fenger Memorial Association have made a grant of $400 for research on heat stroke

Dr Billings Ill—Dr Frank Billings was taken ill with pneumonia on Saturday, February 3 The latest reports are that he is progressing favorably

Internship Examinations—Examinations for internship in Cook County Hospital will be held March 13 to 15 Graduates of medical schools in Cook County are eligible

Free Water for Hospitals—An ordinance fixing the license fee for hospitals at $50 and granting free water to institutions was recommended by the committee on health of the city council, February 1

Municipal Tuberculosis Sanatorium—Dr Charles P Caldwell, president of the board of directors of the Chicago Municipal Tuberculosis Sanatorium, proposes the establishment of a tuberculosis diagnosis station for each side of the city and states that two of these stations can be completed by October if the project is approved

Clinic Week for Women Physicians—The medical women of Chicago announce a clinic week to be held in Chicago, February 12 to 16 Clinics will be held at many of the leading hospitals and special lectures will be given on eugenics and social hygiene A schedule of the clinics may be obtained from Dr Rachel Watkins, secretary of the Medical Women s Club, 25 East Washington Street

INDIANA

Vaccination Ordered—The city board of health of Terre Haute has issued an order that all of the 11,000 pupils of the public schools must be newly vaccinated for smallpox unless they can show certificates of vaccination within seven years About thirty cases have been reported so far in Terre Haute

Personal—Dr Henry O Bruggemann Fort Wayne, president of the local health board sailed from New York for Vienna for Red Cross work, February 3——Dr Arett C Arnett Lafayette, commander of Ambulance Company No 2 Ind N G, gave a talk before the Tippecanoe County Medical Society, January 23 on "Conditions on the Mexican Border' ——Dr Brown S McClintic, Peru, after three years' service with the Russian army is on his way home by way of China——Dr Paul F Martin, Indianapolis, who went abroad last May under the auspices of the American Relief Expeditionary Association, is now in charge of 2,000 beds in the military hospital at Pardubitz Austria——Dr Donald C McClelland Lafayette, M C, Ind N G, has returned from service on the southern border

IOWA

Summer School for Physicians—The University of Iowa announces that it will give a summer course in medicine during June and July next The course will cover four weeks beginning June 18

Hospital Property Purchased—The Buchanan County Hospital Committee has purchased a site for $7,000 More than $60 000 of the $75 000 required for the establishment and equipment of this hospital has already been subscribed

Personal—Dr Will D Runyon, at present superintendent of the Union Printers' Home at Colorado Springs, and formerly assistant superintendent of the State Sanatorium, Oakdale, has been appointed medical director of the Woodbury County Tuberculosis Hospital——Dr Lena A Beach, Carroll, has been appointed head of the Women s Reformatory Rockwell City——Dr Eugene O Koeneman, Eldora, has been appointed physician to the State Industrial School for Boys

KENTUCKY

Hospital Head Retires—Sister Euphrasia for more than forty years superintendent of St Joseph's Hospital, Lexington retired January 28 and will spend the balance of her life at Nazareth

Personal—Dr John G South, Frankfort, was elected president of the Kentucky State Board of Health January 9, for the fourth consecutive term——Dr H H Carter, Shelbyville, has been appointed a member of the state board of health, succeeding Dr O C Robertson, Middlesboro

MARYLAND

Personal—Word has reached Baltimore of the illness of Dr Howard A. Kelly, who is now at Kissimee, Fla His condition is said not to be alarming——Dr George H Hocking Govans, who was shot several times by a demented patient, is recovering and will leave shortly for New York to recuperate.——Dr Irvin M Wertz, Hagerstown, was severely injured recently when a taxicab in which he was riding collided with a delivery truck.

More Room for Insane Needed—As a result of the failure of the last legislature to provide funds for the erection of buildings at the state hospitals for the care of the insane the City Detention Hospital for the Insane at Bay View will be overfilled by the end of 1917 There are now 268 insane patients at the institution, as compared with 139 a year ago The legislature voted in favor of state care of all indigent insane in Maryland, but the last legislature failed to provide for new buildings

MASSACHUSETTS

Physical Training in Public Schools—A committee of leading educators has been formed to secure adoption of a bill, drafted by Dr Dudley A Sargent, Harvard, providing for physical training without military features in the public schools

MONTANA

Personal—Dr James H Drake, Mondak, has been appointed county physician of Bighorn County, and Dr Wilson A Russell, Hardin, county health officer

Physicians and Surgeons Building Incorporated—Articles of incorporation of the Physicians and Surgeons Building Commission, Butte, have been filed The company has a capital stock of $100,000

Society Condemns Contract and Fraternal Practice—The Missoula County Medical Society has gone on record as condemning fraternal or large contract practice, by its endorsement of a report of the committee appointed on that subject, of which Dr George M Jennings, Missoula, was chairman

NEBRASKA

Personal—Dr J S Anderson, Seward has been reappointed state veterinarian, and Dr W T Pritchard, North Platte, has been appointed deputy state veterinarian ——Dr James D Case, Dorchester, has been reappointed state health inspector of the state board of health, and Dr William F Wild, Lincoln state bacteriologist ——Dr Frank S Owen has been elected president and Dr Ernest T Manning vice president of the Omaha University Club ——Dr William L Ross, Omaha, was painfully injured by the overturning of his automobile, January 10

NEW MEXICO

Resigns Commission—Dr Henry A Ingalls, Roswell has resigned his commission in the Medical Corps of the National Guard, and has resumed practice at Roswell

Visiting Nurse for Schoolchildren—As a result of the cooperation between the medical and dental professions, and the school authorities of Albuquerque, a school and visiting nurse has been employed to secure a better standard of health among schoolchildren

NEW YORK

Birth Control Legislation—A bill designed to legalize the dissemination of knowledge regarding the prevention of conception was introduced into the legislature, January 24, by one of the socialist members of that body

New Long Island Hospital—The Mercy Hospital, a small institution conduced by the French Nursing Sisters at Hempstead, L I, is to enlarge its activities A 97-acre site has been purchased and plans are completed for the erection of a group of hospital buildings to cost $100,000, one of which will be a convalescent home costing $30,000

State Death Rate—The state health department reports that for 1916 the death rate for the state was 14 6 per thousand population With the exception of 1915, when the rate was 14 5, this is the lowest annual death rate recorded in the state The infant mortality rate has been cut from 110 per hundred thousand population in 1906 to 51 2 in 1916 Measles alone of the infectious diseases has shown a slightly higher rate of mortality than in preceding years The mortality rate of typhoid fever fell to 5 8 per hundred thousand as compared with 15 in 1910, and 26 7 in 1900

Personal—Dr John H Pryor has been elected president of the Buffalo Association for the Relief and Control of Tuberculosis ——Dr Edgar R McGuire, Buffalo, has been elected to the chair of surgery in the Medical Department of the University of Buffalo, to fill the vacancy caused by the death of Dr Roswell Park ——Dr Samuel M Strong has been elected chief of the surgical staff of the Flushing Hospital, to succeed Dr C B Story ——Dr Anthony F DeGraffenried Bayside, has been elected secretary of the surgical staff of the hospital, succeeding Dr George J J Lawrence, who is with the troops on the Southern border

Chamber of Commerce Opposes Compulsory Health Insurance—The New York State Chamber of Commerce has put itself on record as opposed to the Mills bill for compulsory health insurance which was introduced into the senate, January 15 The committee held that the expenses of sickness, allowance for medical attendance, etc, should be borne by the employer and employee, in equitable proportions and the state should pay only the expense of supervision The chamber, however, favored the creation of a commission by the legislature which should ascertain whether employees are receiving a living wage and investigate the conditions under which they live

New York City

Polk Portrait Presented to Academy—At a stated meeting of the Academy of Medicine February 1, Dr Walter B James announced that the portrait of Dr William M Polk had been presented to the academy and that this completed the full line of portraits of presidents of the academy Dr George D Stewart made the address of acceptance on behalf of the academy The portrait is the work of Miss Belle Isaacs

Wellington Law in Effect—The Wellington law which went into effect, February 1, provides that children must remain in school until they are 15 years of age or if they wish to go to work before reaching that age, that they must be graduates of elementary schools Under this law the state industrial commission supervises the issuing of permits to children by health officers The 50 000 children to whom permits to work have been issued during the past year are not affected by this law It affects only the children who will seek permits from now on

Personal—Dr Douglas Symmers has been appointed assistant director of the pathologic laboratories of Bellevue and Allied hospitals ——Dr Sigismund S Goldwater has been appointed by the board of estimates, consultant on health and hospitals ——Dr Arthur Freeborn Chase has been elected a member of the board of trustees of Bryn Mawr College ——It is announced that on May 1, Dr John S Billings, deputy commissioner of health, will retire after more than twenty years of service Dr Billings expects to continue his work in preventive medicine as health officer for the stock exchange and public library

Death Rate Still High—The hospitals of this city are overcrowded and this condition is reflected by the mortality statistics For the week ending January 27 there were almost 100 more deaths than during the corresponding week of last year, the rate being 17 34 as against 16 46 for the corresponding week of 1916 As during the preceding weeks, respiratory diseases were largely responsible for the increased morbidity and mortality The contagious diseases scarlet fever, measles and diphtheria are not as prevalent as during previous years The city hospitals for contagious diseases are filled to only 25 per cent of their capacity

Public Health Education in the Movies—The state health department's bureau of education find that free shows do not attract any considerable number of spectators, or arouse as much interest as shows for which admission is charged For these reasons the bureau of public health education has arranged to loan health reels free to moving picture theaters which will show them as a part of their regular program The pictures shown have an introductory legend and a "trailer' indicating that they are shown by the department of health The department requests any one interested in this form of public health education to arrange with their neighborhood moving picture theater for the display of health films

Eating Places Must Have Permits—Because of certain legal difficulties encountered by the department of health in dealing with insanitary and dirty restaurants and hotels, the board of health has enacted an ordinance prohibiting the operation of any restaurant in New York City except under a permit from the board of health The term restaurant in this ordinance includes every buffet, lunch room, grill room, lunch counter and every other place where food is prepared, cooked, served, sold and consumed on the premises and every counter in a saloon where food is given away The permit system will go into effect immediately and will be similar to that used so successfully by the department in the control of the milk supply

Council of State Medical Society Reproved—At the last meeting of the New York County Medical Society a resolution was passed disapproving of the action of the council of the state medical society in endorsing the tentative draft of the compulsory health insurance bill While it was acknowledged that the council of the state society had not transcended its powers in taking this action, it was the prevailing opinion that such action should not have been taken until the county societies had had time to discuss the proposed bill and had expressed an opinion on it At this meeting the proposed medical practice act, which would require annual registration, carrying with it a fee of $2, was also discussed and disapproved It was the consensus of opinion that any help that it might lend in the prosecution of illegal practitioners was more than counterbalanced by the inconvenience it would impose on the members of the profession

PENNSYLVANIA

Academy Purchases Building—The Pittsburgh Academy of Medicine has purchased the property of the Bellefield Club, a lot 50 by 140 feet, with a two-story brick building, for the sum of $2,500

Typhoid in Centre County—Up to February 1, there were reported ninety cases of typhoid fever in the south precinct of Rush Township, Centre County with one death The hospital and private sanatorium of Philipsburg are taking care of as many patients as they can accommodate The fever in nearly every case has been found in the homes supplied with water from one source A warning has been given to boil all water and the reservoir and pipe line are to be given a careful investigation

Personal—Dr John B McAlister, Harrisburg has been elected a trustee of Gettysburg College——Dr George B Kalb, Erie, who has retired from practice and removed to California was recently presented a silver loving cup by the Erie Antituberculosis Society——H Lyndley Hosford, who had been secretary to Commissioner of Health Samuel G Dixon for five years has resigned to resume charge of the campaign of a committee of citizens of New York, proposing the enactment of health laws similar to those of Pennsylvania

Philadelphia

Medical Institutions—An elaborate statement was issued, January 27, by the pneumonia commission of the Department of Health and Charities which is actively continuing its study of the causes and conditions responsible for grip and pneumonia This commission is headed by Dr David Riesman

College Endowment—A reunion supper of more than 100 workers for the endowment fund for the Women's Medical College of Pennsylvania was given, February 2, in the college building The purpose of the meeting was to elect new officers, to obtain a charter, and to get on a permanent working basis so that the fund of $70,000 now on hand can be raised to $1,000,000

License Test Case—John A Seibert, a neuropath, was convicted, January 30, before Judge Martin in Quarter Sessions Court for practicing medicine without a license The prosecution was brought by the State Bureau of Medical Education and Licensure, and was a test case to determine whether neuropaths are compelled to be licensed Sentence was deferred until the disposition of a motion for a new trial should be announced

New Officers—Society of Normal and Pathological Physiology president, Dr Paul A Lewis, vice president, Dr Oliver H P Pepper, secretary, Dr A N Richards, and treasurer, Dr Edward B Krumbhaar——Philadelphia Neurological Society, January 26 president, Dr Williams B Cadwalader, vice presidents Drs Max H Bochroch and Samuel D Ingham, secretary, Dr Samuel Leopold, and treasurer, Dr Nathaniel S Yawger——Philadelphia Genito-Urinary Society president, Dr Hiram R Loux, vice president, Thomas R Neilson, and secretary-treasurer, Benjamin A Thomas——Physicians Motor Club president, Dr S Leon Gans vice presidents Drs John J Robrecht, Charles A E Codman and Charles R Haig, Jr, secretary, Dr Howard A Sutton and treasurer, Dr Lewis H Adler

Legislation for Clean Streets—Legislation giving state officials power to compel Philadelphia street cleaning contractors to clean up the streets and to comply with state regulations is being considered by the legislative committee of the Walnut Street Association The 1917 specifications for street cleaning have not been lived up to by the contractors They are not using water or flushing streets and the block men are not obeying the rules, which specify the carrying of sprinkling pots in front of every dust carrier The widespread epidemic of pneumonia, grip and other disorders is probably caused in some degree by the condition of the streets, and unless they are cleaned up it is feared the toll may be heavy in infantile paralysis victims during the coming summer Since January 1 there have been 752 deaths from pneumonia in Philadelphia, as compared with 675 during the same period in 1916

VERMONT

New Members—The governor has made the following appointments on the State Board of Medical Registration Dr W Scott Nay, Underhill, reappointed for six years, Dr Amos Eugene Parlin, Island Pond, a former member of the board eclectic member, for six years, and Dr Edward Kirkland, Bellows Falls, as homeopathic member, to fill out four years of the unexpired term of Dr E B Whittaker

Personal—Dr William R Rowland, East Corinth, is said to have retired from practice and has entered the universalist ministry He will be in charge of parishes at New Madison, Greenville and Palestine, Ohio——Dr Don D Grout, superintendent of the State Hospital, Waterbury, for twelve years, has resigned, and has been succeeded by Dr Watson L Wasson, assistant superintendent

CANADA

The Ontario Medical Commission—Mr Justice Hodgins resumed the sittings of this commission the past week Lieut-Col Irving H Cameron of the University of Toronto urged that a proper diagnosis could only be made except through a complete knowledge and understanding of the human body, and that massage treatment, such as osteopaths and chiropractors used, was not neglected in the medical courses of the universities

Feebleminded Require Institutions—The annual meeting of the Ontario Society for the Care of the Feebleminded was held in Toronto, February 2 Dr Joseph D Page, superintendent of the Immigration Hospital, Quebec City, spoke on feeblemindedness in relation to immigration, stating that, owing to hasty examinations and lack of specially trained examiners, many mentally defective persons were admitted He advocated the inspection of immigrants before their tickets were bought, and also that Canadians should be employed as ship surgeons Dr Gordon Bates, Toronto, outlined the work of the Toronto branch of the society The city council favored using the Industrial Farm and would ask the legislature for permission to raise the money for the erection of suitable buildings

University Men Overseas—Brown, Toronto 1908 is recovering from enteric fever in St George's Hospital, Bombay, India, Little, Toronto 1914, is on sick leave in India following paratyphoid fever, Maclachlan, Queen's, is in Colaba Hospital, Bombay, recovering from fever, Moon, Toronto, 1914, and Ball, Toronto, 1914 are at the front in Mesopotamia, Roy Philips, Toronto 1914, is with No 23 Indian General Hospital at Basra Mesopotamia, Dr Ramsay, McGill University, is at the front in Mesopotamia, Lyons, Dalhousie University (Halifax, N S), is also in Mesopotamia, Lieut Edward Fidlar, R A M C, is in Bombay——Lieut-Col Ethelbert B Hardy, D S O, Toronto, has been appointed commanding officer of the Toronto Base Military Hospital, succeeding Major Camown A A Warren, who returns to the headquarters staff Military District No 2, Toronto——Capt W L C McBeth, Toronto, is to command the Military Hospital at Hamilton, Ont——Capt J S McCallum winner of the Military Cross, is to be assistant to Captain McBeth

Personal—The Victoria Cross has been awarded to Major Roscoe D Arnott, Stratford, Ont, for conspicuous bravery on the field of action——Lieut-Cols Robert Rennie, Toronto and Edward C Hart, Victoria, B C, C A M C, have been made Companions of the Order of St Michael and St George——Capt John Arthur Cullum, Regina, Sask, C A M C, has been awarded the Bar to the Military Cross for evacuation of the wounded under heavy fire——Major Charles Carter, Hamilton Ont C A M C, has been appointed deputy assistant director of medical services in charge of the troops at Hamilton Brantford, St. Catherines and Niagara Falls, Ont.——Capt Malcolm A Carmichael, Strassburg Station, Sask C A M C, medical officer of the Ninety-Sixth Winnipeg Reserves, has been transferred to the medical training school at Shorncliffe, England——Lieut-Col George Clingan, C A M C, Brandon, Man, has been given command of the Canadian Convalescent Hospital at Monks Horton, England Capt John M Eaton, Winnipeg Man, has been appointed second in command——Dr Charles C Tatham, formerly of Cargill, Ont., has been appointed medical superintendent of the Strathcona Hospital, Edmonton, Alta., which was taken over by the Military Hospitals Commission early in December Dr Hobert L Collins has been appointed to the staff of that hospital——Major W W Judd and Capt C H Hudson have resigned their commissions in the Canadian Army Medical Corps

GENERAL

Missouri Valley Physicians to Meet—The annual meeting of the Medical Society of the Missouri Valley will be held in Keokuk, Iowa, March 22 and 23, under the presidency of Dr Charles R Woodson, St Joseph, Mo The society will be the guests of the Physicians Club of Keokuk

Bequests and Donations—The following bequests and donations have recently been announced

Methodist Hospital Philadelphia, $5,000, by the will of A A Stephens Tyron, Pa

The Appui aux Artistes, Blind French Soldiers Hospital, at Parma, Italy, and the Italian Red Cross equal parts of $13 500, the net proceeds of an operatic entertainment, given in Chicago January 21

Fish Hatchery Discontinued—On the recommendation of the commissioner of fisheries, the secretary of commerce has discontinued the fish hatchery located at Havre de Grace, Md, at the mouth of the Susquehanna River for the propagation of shad (*Commerce Reports* Jan 31, 1917) The legislature of Maryland has neglected to provide legislation protecting this fish so that the take of shad roe has fallen in twenty years from about 210 000,000 maximum to a little over 2 000 000 minimum, increasing the cost of propagating the fish at this station to more than twelve times what it formerly was

FOREIGN

French Physicians Raise Their Fees—The syndicate of physicians of the Seine district have agreed to charge 25 per cent more for their services hereafter for clients who have not had to suffer directly from the fact of the war

New Hospital for Women at Munich—The new Universitats-Frauenklinik was recently dedicated at Munich It is said to be the largest of the kind in Germany The building alone cost 3 000 000 marks about $750,000, and the equipment nearly a third as much Doderlein is the chief of the clinic

Embargo on Medicinal Herbs—The French government by decree of Jan 25, 1917, from and after January 27 prohibits the export, etc of fruits for distilling, and roots, herbs, flowers, leaves barks lichens, fruits and seeds of medicinal character, subject to the usual exceptions (*Commerce Reports,* Jan 31, 1917)

Coffee Grounds as Feed for Cattle—A company in Berlin is collecting coffee grounds, and especially the grounds from the various cereal substitutes for coffee and is drying them to use as feed for cattle An official appeal is made to restaurant keepers and others to save and collect the grounds for this purpose

Chair for Welfare Work Founded at the Collège de France, Paris—The city and county authorities of Paris have founded and appropriated funds for a chair of *prevoyance et assistance sociales* at the College de France of the University of Paris The incumbent of the chair has not been selected as yet The salary is to be 12,000 francs, about $2,400

Homage to Gersuny—On the occasion of the fiftieth anniversary of R Gersuny's entering on the practice of his profession, an endowment fund was presented in his name to the training school for nurses connected with the Rudolfinerhaus at Vienna which he was mainly instrumental in founding The fund is for welfare work among the nurses

Institute for Research on Psychiatry—A number of members of the Kaiser Wilhelm Association have planned a German institute for research on psychiatry The funds subscribed as yet do not permit an independent establishment, but it is proposed to organize an institute of the kind as a branch of the Munich psychiatric clinic, after the close of the war

"Treatment of Hernia Without an Operation"—The military authorities in the Berlin district have closed the Colemann establishments at Berlin Colemann is said to be of English birth and advertised to cure hernia without operative measures, working under his own name and as the Dr Colemann's Bandagengesellschaft m b H He had been several times reprimanded by the Berlin Tribunal of Honor, but now the military authorities have put him out of business

The Kraussianum at Munich—Nearly $400 000 was bequeathed in 1910 to the city of Munich by Dr G Krauss to found, as a memorial to his father, an institution for mechanical and other forms of orthopedics, especially those practiced by the elder Krauss The stately building housing it is now completed It stands on the grounds of the University orthopedic clinic with which it is closely affiliated, Prof F Lange being in charge

Deaths in the Profession Abroad—A Chauveau, the biologist and physiologist, at Paris, aged 89——Huguet Pike, an American doctor at Paris, admitted to practice in France in 1869, chevalier of the Legion d'honneur——The former professor of ophthalmology at the Universities of Bern and Rostock, von Zehender, aged 91——C Posselt, professor of diseases of the skin and syphilis, at the University of Munich, aged 79——E Leser, professor of surgery at the University of Halle until 1894, since then he has been living at Frankfurt a M——H Schule, director of the insane asylum at Illenau and coeditor of the *Allgemeine Zeitschrift fur Psychiatrie*, aged 76——W Lublinski, author of numerous works on his specialty, laryngology, aged 64

Centennial of Father of Atomic Notation, Isolator of Several Familiar Drugs—The Chemical Society of France held a memorial meeting, December 9, on the hundredth anniversary of the birth of the French chemist, C F Gerhardt, 1816-1856 His fame rests mainly on his conception of the molecule as a unitary structure, built of atoms, as the basis of all substances Among the chemicals he isolated are said to be acetanilid, acetylsalicylic acid and cinnamic acid With Laurent he founded a school of practical chemistry at Paris the aim of which was to "teach the art of the laboratory to students entering a scientific, medical or pharmaceutic career or industrial chemistry" The school was not commercially a success, and Gerhardt's life was a struggle, sacrificing his position, his fortune and even his life, to the search for truth, dying at 40 He was professor at the University of Strasburg the last year or two of his life

WAR NOTES

Losses in the Profession in Germany—The *Deutsche medizinische Wochenschrift* of Dec 14 1916 gives the number of physicians who have fallen at the front as 395, 214 have died from sickness contracted in the course of their service with the troops, 221 have been severely wounded, and 677 wounded but not severely, while 200 have been taken prisoners and 110 are missing These figures are from the German casualty lists 1 to 700

Virchow's Medals Donated to the Common Cause—Rudolf Virchow's family have donated to the Berlin Goldsammelstelle seven gold medals that had been conferred on the scientist by foreign scientific organizations The medals have a total weight of 1,200 gm and are valued at 2,800 marks in gold, about $650 The heirs of Mommsen have taken a similar step, turning in to the gold reserve the medals that had been awarded to Mommsen in his day

The Interned Sick and Wounded in Switzerland—The *Munchener medizinische Wochenschrift* states that fully 30 000 sick and wounded are now interned in Switzerland and being cared for there This, it adds, is a most comprehensive practical philanthropy which insures the permanent gratitude of all the countries involved There have been 128 cases of insubordination compelling disciplinary measures and twelve of the interned had to be returned to the prison camps whence they came

Effect of War Diet on the Sick—The local sickness insurance societies of Berlin have recently sent out question blanks to the physicians connected with the work to inquire as to the effect of the war diet on different categories of the sick, whether it has a depressing influence on the resisting powers or not Separate reports are asked for those under and over 18, and for men and boys and women and girls Special data are also sought as to the influence of the war diet on the anemic, the nervous, the tuberculous, those with stomach trouble, with acute diseases, and the pregnant

Vacation in Norway for Nurses with the Belligerent Forces—Our German exchanges mention that at the recent annual gathering of the hotel proprietors of Norway, a suggestion was made by the chief of the medical department of the Norwegian army to the effect that the hotel proprietors offer the nurses at the hospitals of the belligerent forces free accommodations to enable them to get a brief rest and respite The plan was cordially taken up and backed by private individuals, and invitations for the purpose have been sent to the headquarters of the forces of each of the belligerent nations An equal number of nurses from each of the forces is planned

Conference to Study Welfare Work for War Cripples—A conference for the study of professional retraining and of other questions affecting the wounded in war is to be held by representatives of the Allies at Paris, March 6, under the initiative of the Belgian government The organizers of the conference are appealing to all experts in any of the questions relating to this subject to report to the secretary, rue du Bocage de Bleville, Havre, or the Office National des Mutiles et Reformes de la Guerre, 97 quai d'Orsay, Paris The five sections are devoted to the physical and the professional training, the placing of the men, and their economic and social interests

Typhus and Smallpox in Poland—The *Berliner klinische Wochenschrift* gives the figures for the incidence of these diseases in the newly acquired portion of Poland, now called the Generalgouvernement Warschau since the occupation by the Germans By three-month periods there have been 704, 5,256, 6 294, and 2,309 cases of typhus, with, respectively, 32, 428, 510, and 140 deaths The corresponding figures for smallpox are 955, 1,029, 918, and 195, with 157, 144, 130 and 23 deaths The figures show that the health authorities are getting the diseases under control, and that smallpox will soon be practically stamped out, while typhus is also declining There have been no cases of cholera in the district for more than a year

The New Law for Patriotic Service in Prussia—Conferences are being held by the university authorities medical societies and groups of all kinds of organizations to discuss ways and means for carrying into effect the provisions of the law for auxiliary patriotic service, *vaterlandische Hilfsdienst* The law went into effect, Dec 5, 1916 and mobilizes the entire population between the ages of 16 and 60, not directly engaged in the war The government authorities and the representatives of the organized physicians have been in prolonged and confidential conference over the working of the law as it affects medical men and medical students The outcome has not been made public as yet.

BERLIN LETTER

(*Received Jan 26 1917*)

Berlin, Dec 4, 1916

Personal

Nov 12, 1916, Professor Bruns, the neurologist, died in Hanover at the age of 58 He had been one of the pupils of Professor Hitzig of Halle His best known published work is the section on tumors of the nervous system in Nothnagel's Special Pathology and Therapy" His contribution to the subject of hysteria in children is also well known His last work of any great size was the 'Handbook on Diseases of the Nervous System of Children" in which he was a collaborator of Ziehen and Cramer He also made many individual contributions to the diseases of the spinal cord tumors of the brain and their treatment, the neuritides of diabetes mellitus, etc

Prof E Gaupp ordinarius in anatomy in Breslau died suddenly, Nov 24 1916 He had succeeded Professor Hasse in this position at the beginning of the present semester

Health of the German Army

A recently published report of a member of the medical division of the army details the morbidity of the troops from the beginning of the war to February, 1916 The figures are made on the basis of a thousand The average monthly morbidity from August, 1914, to January, 1915, was 129 3 from February to July 1915, it was 114 2, from August, 1915, to January, 1916 it was 105 The morbidity rate has not increased since then Particularly noteworthy is the absence of any epidemics The results of the surgical treatment given in the various hospitals were exceptionally good The results are given in percentages, as follows 86 6 per cent recoveries in the field military hospital, and 90 1 per cent in the home hospitals, only 1 5 per cent. of the wounded and sick died. These percentages could have been obtained only by having efficient medical care and a well trained corps of nurses At about the middle of 1916 18,000 physicians were in the field, and 6 000 were attached to the military service at home Four thousand served as volunteer nurses The medical service was aided by 92,000 members of the sanitary division and army nurses 23 000 male and female nurses in the military districts and 72,000 in the home hospitals Nervous diseases occurred less frequently in the troops in active service at the front than among those not so engaged Diseases due to exposure occurred much less frequently than one would suppose The supply of drugs is more than sufficient It is ample to permit of furnishing drugs to the armies of all the central powers The recently adopted steel helmet has proved to be of great value. Without any forehead protection it wards off shrapnel bullets, pieces of shell and other larger explosives, and with the forehead protection it even wards off rifle shots

NEUROSIS AND NATIONALITY

In a recent number of the *Wiener klinische Wochenschrift*, Dr Schneider discussed the predisposition of various nationalities to diseases of the nervous system, basing his remarks on observations made on Austro-Hungarian soldiers He found that the Magyars the Roumanians and the Czechs were particularly predisposed to severe nervous disturbances as the result of their war experience The Poles and German-Austrians occupy the middle ground, whereas the Jew shows a strong predisposition to these diseases From the literature the impression is gained that nationality and race play a considerable role in the etiology of functional nervous disturbances, especially of the hysterical type While Schneider's observations confirm these impressions, the result was not quite what the literature would lead one to expect The Poles, for instance, show a predisposition to severe nervous disturbances of all kinds However, the percentage of persons so affected corresponds with the average of all nations (about 12 per cent) All the remaining Slavs, excepting the Czechs, show a much lower percentage A proper conception of the percentages given by Schneider can be gained by considering only those nationalities which were represented by more than 100 patients These were the German-Austrians the Czechs and the Magyars The Poles were represented by eighty-one cases, too few to permit of drawing definite conclusions All disturbances of the nervous system occurring among the first three nationalities mentioned above were as follows Among 377 Germans there were thirty-three cases (9 per cent), among 194 Czechs there were thirty cases (15 per cent) and among 199 Magyars there were thirteen cases (6 5 per cent) There were seven cases of ambulatory war neuroses, all occurring among the Czechs who, on the whole seem to be particularly predisposed to traumatic hysteria About 40 per cent of the Jews had nervous disturbances, mostly mild in type, with complete recovery and rarely exhibiting hysterical symptoms Of the Roumanians 21 per cent were affected, and of the Germans only 13 per cent, of the Ruthenians and southern Slavs, 11 per cent A strong predisposition to the apathetic depressive nervous diseases was noted among the Roumanian soldiers, such cases occurring even when the troops were on the march

Campaign Against Venereal Diseases

The Prussian medical commission has formulated the following rules of governing the campaign against venereal diseases 1 General rules for combating venereal diseases (*a*) improving the economic status of the population so as to make early marriage possible, and to guard the female population against delinquency, improving housing conditions and instituting official supervision of homes (*b*) instituting instruction on sexual life and especially on the dangers of extramarital sexual relationship and of sexual diseases, (*c*) improving the physical and moral status of youth by means of gymnastics, play and sport, (*d*) instituting a campaign against the misuse of alcohol, (*e*) improving the diagnosis and treatment and preventing the spread of venereal diseases (*f*) improving the means and methods for treating venereal diseases, erecting dispensaries in which such diseases can be treated, with the assurance of absolute secrecy as to the identity of the individual and treating all severe cases in an institution, (*g*) proper instruction by the physician as to the dangers of venereal diseases, their method of spread and especially the precautions which must be taken by one who is under treatment, (*h*) reducing the price of the newer specific drugs, and (*i*) campaign against quackery 2 An amendment of Paragraph 180 of the imperial crime punishment regulations is urged 3 Supervision of prostitution, the burden of which shall hereafter fall on the medical man and not on the police 4 Enforcement of the law of Oct 28, 1905 and the ministerial edict of Dec. 11 1907 5 Keeping the prostitutes off the streets and out of public places, and segregating them for moral as well as police reasons

LONDON LETTER

London, Jan 15, 1917

The War

NEW FOOD REGULATIONS

Lord Devonport, the food controller, has issued six orders regulating the use of bread, sugar and other staple foods It is the duty of the food controller to regulate the supply and consumption of food in such manner as he thinks best for maintaining a proper supply of food, and to take such steps as he thinks best for encouraging the production of food The first of the orders makes an important extension of the two existing flour and bread orders, under which millers are now required to extract from wheat a percentage of flour averaging 76 (as stated in a previous letter to The Journal) Under the new order, every miller will be required to add to the prescribed percentage a further percentage of not less than 5, either by a further milling of wheat or by the addition, at his option, of flour derived from barley, maize, rice or oats He may add yet another voluntary 5 per cent (making 10 per cent in all) in addition to the compulsory 5 per cent With regard to the milling of grain other than wheat, it is stated that barley and rye present no difficulties Existing machinery, however, will not mill maize or oats at the same time as it mills wheat, and the admixture of maize or oats with wheat will probably have to be made in the form of flour A wheat (restriction) order prohibits the use of wheat for any purpose except that of seed or of making flour, and thus makes illegal the feeding of wheat to animals The object is, of course, to reserve wheat for human consumption A good deal at present is being dissipated in other directions, particularly in the feeding of stock, and it is necessary to check this waste An exception is made to the order in respect of "tailings, screenings and damaged wheat unsalable for milling" The food controller now prohibits entirely the use of any grains required for food or feeding-stuffs, or any of their products, for the purpose of food for game birds It is felt that with the present emergency the rearing of pheasants and indulgences of this kind cannot be continued The manufacture of extravagant sweets is stopped A maximum retail price of 6 cents an ounce for chocolates and 4 cents an ounce for other sweetmeats is fixed The price in each case includes the price of any covering in which the sweets are sold The use of sugar or chocolate for the external covering of cakes, pastry or similar articles is prohibited During 1917 no manufacturer will be allowed to use for sugar confectionery or chocolate more than 50 per cent of the amount so used by him in 1915 The use of winter milk in the manufacture of chocolate is prohibited The export of oats from Ireland is prohibited except under license The price to be paid to growers for potatoes is $40 a ton for the first quality in January and February, with a rising scale attaining a maximum of $45 for later months The maximum price for the best seed potatoes is to be $60 a ton

ACCUMULATED FATIGUE IN WARFARE

The second interim report of the British association committee, of which Prof J H Muirhead is chairman, to investigate fatigue from the economic standpoint contains an interesting section by Dr T G Maitland on accumulated fatigue in warfare The breakdown resulting from long-continued trench strain, while soon recovered from after a period of rest, leaves the quality of the soldier's work on his return to activity impaired, his aim is less good, his decision less prompt The hope of obtaining an ideal working day for each unit is incapable of realization, as the strain in the field varies with the occasion and depends on such mutable factors as sleep, food, noise and nervous strain With the present greater ability to supply reinforcements, strain can be diminished as well as the actual fighting units more often replaced, and in this way an opportunity is given for what Dr Maitland calls a "growing delicacy of perception in the anticipation of the breaking point" From a military standpoint the most important item is the large class of combatants who do not collapse in the field but return from the lines with extreme pallor, a low blood pressure, and a *faiblesse irritable* shown by the restlessness of hands and feet In these cases fatigue has gone slightly beyond the possibility of sound physiologic recuperation To reduce the incidence of such cases, which are an encumbrance, the hours in the fighting line have been lately diminished The ultimate sequel of such long-continued fighting strain has been seen by Dr Maitland in Serbian soldiers who have lived through six years of nearly continuous Balkan War and many of whom show marked arteriosclerosis He was able in most cases to exclude the action of mineral poisons, alcohol and acute specific toxins, and to establish the production of fibrosis in the arteries from hard work alone

Another Death from a Salvarsan Substitute

Some weeks ago in describing a death due to kharsivan (The Journal, Sept 30 1916, p 1030) I stated that the coroner of southeastern London, who held the inquest, said that he had had in his district three deaths from salvarsan or its substitutes within a short period After a brief interval the following case, again in the same district, has occurred at Guy's Hospital A man, aged 33, a tram conductor, was admitted with syphilitic meningitis of the spinal cord He was given an intravenous injection of arsenobenzol, the French substitute for salvarsan He had been carefully prepared and the operation lasted three quarters of an hour A rather small dose, 0 04 gm, was injected intravenously, and the patient died suddenly two hours later Dr Spilsbury, pathologist, who made a postmortem examination, said he found a large tumor in the front part of the brain, and extensive softening of the brain Death was due to coma from disease of the brain, accelerated by the administration of arsenobenzol The patient was really in a very serious condition, but the exact nature and extent of the disease of the brain could not be easily diagnosed The dose of arsenobenzol given was the usual dose, but, if anything rather small The witness was afraid there was a danger of fatal results occasionally, but more often when there was disease of the brain He thought every care was exercised in the administration of the drug, which was one of the best known remedies It was similar to kharsivan, the English substitute, and was being used with most beneficial results in a large proportion of cases The jury returned a verdict of death by misadventure

The War and Public Health

In his report for 1915-1916, Dr Arthur Newsholme, health officer of the Local Government Board, states that the war has directed attention to means for improving the health of mothers and of their children during the first five years of life During 1915, work with this object was largely augmented The need for greater effort to save child life is shown by the markedly lower natural increase of population in 1915 than in 1914 In the former year there were 362,354 more births than deaths in England and Wales Last year this excess of births over deaths was only 252,201 There were 64,569 fewer births and 45,584 more deaths in 1915 than in 1914 In 1915 as many as 98,477 infants died in their first year after birth, and 55,607 died at ages of from 1 to 5 Dr Newsholme says that there is no insuperable difficulty in reducing the total deaths in childhood to half the present number At the end of last March about 1,000 health visitors had been appointed by local authorities This means one health visitor approximately to 800 births annually A steady approach is being made to the standard of one health visitor to 500 births, which was laid down as desirable in his memorandum of November, 1915 So far as infectious diseases are concerned, with the single exception of measles, the record of 1915, like that of 1914, remained favorable Smallpox heretofore has failed to gain more than a temporary footing in any district Dysentery, notwithstanding the return to this country of many soldiers recovering from this contagious and relapsing disease, has not spread In both the civil and the military population typhus has failed to spread, and the amount of typhoid fever has been so small as to inspire fresh hope that this disease, like typhus, will soon be counted among the almost extinct diseases of this country There have been no cases of plague or cholera Cerebrospinal fever showed much activity, and special work was undertaken, both military and civil, to control its spread and to investigate its natural history Acute anterior poliomyelitis occurred sporadically in this country during 1915 Tuberculosis work has been greatly restricted by the war

Reference is made to the national scheme for the diagnosis and treatment of venereal diseases, which promises to be among the most successful public health work of the early future As the nonrecommendation of compulsory notification by the royal commission has been criticized, Dr Newsholme recalls that in the memorandum which he presented to that body he emphasizes the following considerations, to which further inquiries have led him to attach increased importance Even if compulsory notification of these diseases could be enforced—a very doubtful point—the consideration of its enforcement should be postponed until after these conditions have been fulfilled (*a*) Adequate arrangements must be available for the gratuitous treatment of all applicants suffering from venereal diseases in every administrative area (*b*) There must be legal prohibition of treatment by unqualified persons so that all cases of early venereal disease receiving treatment will come under the observation of physicians When these conditions have been fulfilled, patients will generally avail themselves of the facilities for treatment officially provided or will be treated by their own physician, and the question may legitimately arise whether the public safety is then adequately protected, or whether notification is necessary to insure that every patient continues treatment as long as this is needed in the public interest Attempts to secure the notification of venereal disease in adults under any of the forms in which it has been recently suggested would only diminish recourse to the treatment shortly to be provided in all our chief centers of population

The heavy demands of the army for physicians has led to an extensive employment of women as health officers, assistant health officers, tuberculosis officers and resident medical officers in sanatoriums and fever hospitals In this great national emergency their services have proved invaluable

Selected Parents

A paper on "The Principle of Eugenics" was read to the Insurance Institute of London by Major Darwin son of Charles Darwin and president of the Eugenics Education Society Major Darwin compared the inborn qualities of a man to be a fixed anchor to which he is tied by an elastic cord Everything that is possible should be done for the environment of the living—that is, in order to stretch these elastic cords, but it is foolish not to try to insure that the anchors of our successors on earth shall be cast on better ground This is the aim of the eugenist, and, as this science is in its infancy, it cannot be expected yet to have accomplished great things Few persons really care what happens to the nation long after they are dead, yet we must make an effort to insure that the innate qualities of our race shall continue to improve The eugenist aims at substituting for the apparently blind selection of nature in the matter of parentage a conscious and rational selection

The fact that offspring often differ from their parents is frequently held to tell against all eugenic reform, but modern science endorses the belief of every breeder of animals in the advantages of breeding only from the best stock In regard to the methods of the stock yard, it must, however, be remembered that in the case of man his religion must be taken into account, whereas in the case of animals it need not. It is the lessons and not the methods of the stock yard which must be held in view Another objection raised against all eugenic reform is the difficulty of deciding who had better and who had better not become a parent, but if attention be confined to the unquestionably fit and unfit there will be ample work to do As to increasing the birth rate among the fit we must rely largely on awakening the moral sense of our fellow countrymen and appealing to their spirit of patriotism It is immoral and unpatriotic to limit the size of the family when both parents are fairly healthy, except to insure that there shall be an adequate interval between births, and that the family shall be brought up in comfort, but not in luxury, without external aid Reforms in taxation might aid and reinforce this moral precept As to diminishing the fertility of the unfit, the mental deficiency act, if properly administered, would be an example of what might be done, and somewhat similar measures are possible with regard to criminals, drunkards and paupers What is mainly desirable is an investigation to ascertain if the danger to the nation from the present rapid multiplication of inferior stocks is as great as it appears to eugenists If it be so, it must be dealt with with a fearless hand But that is not yet If the nation could see that its future is largely in its own hands, the battle would be half won It is not the creation of the superman which eugenists are now aiming at, for that ideal receives but little support from science The endeavor should be to increase the proportion of the existing higher types, and it is now doubly necessary thus to act in view of the slaughter of our fittest in battle

PARIS LETTER

PARIS, Jan 11, 1917

Death of Professor Chauveau

French science has just suffered a great loss in the death of Prof Jean Baptiste Auguste Chauveau, aged 89 years He was born, Nov 23, 1827, at Villeneuve-la-Guyard (department of Yonne) Chauveau entered l Ecole veterinaire d'Alfort at 17, leaving it at 20 to become chef de service at l'Ecole veterinaire de Lyon A considerable part of his professional life was spent there, first as professor of anatomy and physiology, then as director, to which position he was appointed in 1875 Two years later, i e, at the age of 50, he secured his degree of doctor of medicine Afterward he occupied the chair of general pathology at the Museum of Natural History of Paris, he also was general inspector of veterinary services

It was as a physiologist that Chauveau became known In collaboration with Marey, he invented and put into practical use the method of registration of physiologic movements and especially that of the cardiac rhythm In pathology, tuberculosis was one of the subjects of chief interest to him He was the founder and director of the *Revue de la Tuberculose* He also directed the *Journal de Physiologie et de Pathologie Générales* A member of l'Academie des Sciences since 1886, Chauveau entered l'Academie de Medecine in 1891 and became its president in 1913

The War

MEDICAL EXAMINATION OF CANDIDATES FOR MILITARY AERONAUTIC SERVICE

By reason of the disadvantages presented by candidatures for this service not justified by sufficient physical aptitude, the undersecretary of state of the military health service has warned physicians in charge of the aviation depots to comply rigorously in the examinations with instructions concerning the physical aptitude of the aviator who is to enter the service Moreover, on the arrival of officers at the aviation school, or of soldier aviators at the aviation depots, they must undergo examinations by two physicians At the second examination, which shall be thorough, the attention of the specialists shall be drawn particularly to the necessity of ascertaining the absolute integrity of the respiratory, circulatory and renal functions Careful attention shall be given to discerning organic from inorganic cardiac murmurs Aspirants who present arrhythmia or permanently slow pulse (Stokes-Adams syndrome), tachycardia, Basedowan tachycardia, or extrasystolic arrhythmia will be excluded from service only when connected with an organic lesion of the heart. By way of compensation, the following disorders of cardiac rhythm will not constitute contraindications, when applications are made for positions as student pilots total bradycardia, emotive tachycardia tachycardia due to physical exercise or respiratory arrhythmia All cases presenting emotivity with nervous instability, however, shall be excluded Physicians are to study the health of the students in training by means of repeated examinations, and they are especially urged to study the arterial pressure of the aviators with the sphygmomanometer This practice may be of much value in the course of training, as well as in obviating the dangers of overtraining In a general way, aviation tends to produce a lowering of the highest arterial pressure even when the minimum pressure remains normal, as when the aviator is not in flight This lowering of pressure is especially appreciable in subjects little or moderately trained Overtraining may cause a marked lowering of pressure even in aviators inured to the service

LARGE ABDOMENS (PAUNCHES) AMONG THE SOLDIERS

Drs Desire Denecheau and Henri Mattrais have observed disorders characterized by enormous abdomens without any trace of organic trouble save a slight colitis readily relieved by simple flexion of the thighs The origin of this disorder is traced back to a peculiar action of the diaphragm noticed in patients thus affected It appears like a phenomenon of the motor order which can be produced, as well as relieved, at will In the estimation of Denecheau and Mattrais it is brought about by digestive troubles common in colitis, aerophagia also contributes to the condition, although it is not believed to be the only cause Briefly, this trouble is analogous to the nervous abdomen frequently observed in those whose nerves are overwrought by fright It should not, however, be the cause of discharge from duty, much less, invalidation at half pay

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Marriages

BERNARD SAMUEL STRAIT, M D, Penn Yan, N Y, to **BARBARA FANNIE KUNTZ**, M D, of South Williamsport, Pa, January 15

GEORGE LOUIS STEELE, M D, West Springfield, Mass, to Miss Vera Gertrude Colburn of Bangor, Me, Nov 30, 1916

PAUL THEODOSIUS FERRER, M D, to Miss Minnie Elizabeth Hoehl, both of Port Chester, N Y, Dec 31, 1916

PAUL E BETHARDS M D, to Miss Florence Freeman, both of Toledo, Ohio, at Brockton, Mass, January 17

CLAUDE GRIFFIN, M D, to Miss Caroline Claire Stewart, both of Carrollton, Ga, Dec 23, 1916

GEORGE CERIO M D, Rome, Italy, to Miss Mabel Norman of Newport, R I, January 20

Deaths

Henry Theodore Bahnson, M D, Winston-Salem, N C, University of Pennsylvania, Philadelphia, 1867, aged 71, a Fellow of the American Medical Association, a Confederate veteran, local surgeon of the Southern Railway System, president of the board of surgeons, chief surgeon of the Winston-Salem Southbound Railway Company, once president of the Medical Society of the State of North Carolina, a member of the American Public Health Association, president of the state board of health, secretary of the state board of medical examiners, a member of the board of directors of the Morganton State Hospital, died at his home, January 16, from angina pectoris

Pearce Kintzing, M D, Baltimore, University of Pennsylvania, Philadelphia, 1887, aged 55, a Fellow of the American Medical Association, chief physician to the Franklin Square Hospital, Baltimore, professor of anatomy and surgery in the Women's Medical College, Baltimore, from 1890 to 1897, professor of practice of medicine and diseases of the heart, and clinical medicine in Maryland Medical College from 1899 to 1901, and since 1904 a director and trustee of the Maryland Medical College, died at his home in Baltimore, about January 31

Frank Sidney Fielder, M D, New York, College of Physicians and Surgeons in the City of New York, 1892, aged 50, a Fellow of the American Medical Association and New York Academy of Medicine, demonstrator of anatomy in Cornell University Medical Department, attending pediatrist to Bellevue Hospital, outpatient department, assistant surgeon United States Navy, during the Spanish-American War, author of several textbooks on diseases of children, died at his home, January 24, from pneumonia

Dexter Boylston Farnsworth, M D, Springfield, Mo, Rush Medical College, 1877, aged 67, formerly a Fellow of the American Medical Association, a member of the Missouri State Medical Association, a specialist on diseases of the eye, ear, nose and throat, died at his home, January 22 At a special meeting of the Greene County Medical Society January 23, it was decided to postpone the annual banquet of the association on account of the death of Dr Farnsworth

Francis A Smith, M D, Rock Island, Ill, Pulte Medical College, Cincinnati, 1891, aged 64, formerly of Zanesville, Ohio, local surgeon for the Baltimore and Ohio Railroad and a member of the Zanesville Board of Education, for six years head physician for Ohio of the Modern Woodmen of America, and since 1903 chairman of the board of supreme medical directors of that organization, died at his home, January 21, from cerebral hemorrhage

James R Barnett, M D, Neenah, Wis, Rush Medical College, 1868, aged 74, a Fellow of the American Medical Association, and at one time president of the State Medical Society of Wisconsin, for four years a member of the state legislature, a veteran of the Civil War, supreme medical examiner of the Equitable Fraternal Union, died at his home, January 30, from senile debility

William A Young, M D., Newport, Ky, Medical College of Ohio Cincinnati 1893, aged 46, formerly a member of the Kentucky State Medical Association, local surgeon for the Chicago, New Orleans and Texas Pacific Railroad, surgeon to the Speer's Memorial Hospital, Dayon, Ky, health officer of Campbell County for eight years, died in the Speer's Memorial Hospital, December 21, from multiple sclerosis

Frederick W Schmidt, M D, Riverdale, Chicago, Northwestern University Medical School, 1885, aged 55, formerly a Fellow of the American Medical Association and a member of the American Association of Railway Surgeons, local surgeon for the Illinois Central System, died at his home, January 31, from septicemia, after an illness of one year

Thomas Jackson Thompson, M D, San Diego, Calif, College of Physicians and Surgeons in the City of New York, 1872, aged 73, for seven years deputy health officer of the port of New York, and later for eight years an officer of the U S Public Health Service in Japan, died at his home in Kensington Park, San Diego, January 10

Jacob S Newcomer, M D, Chicago, College of Physicians and Surgeons Chicago, 1893, aged 54, for many years a practitioner of South Dakota and an officer of the United States Indian Service, senior consulting physician of the Contagious Diseases Hospital of Chicago, died at his home, January 27, from nephritis

Melanchthon C Porter, M D, Topeka, Kan, College of Physicians and Surgeons, Chicago, 1890, aged 54, a Fellow of the American Medical Association, professor of surgery in the University of Kansas, formerly surgeon to the Union Pacific Railway, and health officer of Clay Center, died at his home, January 30

William H Winterbotham, M D, Salina, Kan, College of Physicians and Surgeons, Keokuk, Iowa, 1872, College of Physicians and Surgeons, Chicago, 1884, aged 70, formerly a Fellow of the American Medical Association, a member of the Kansas Medical Society, died at his home, January 21, from influenza

George Wilbur Crawhall, M D, Seattle, Rush Medical College, 1890, University of Pennsylvania, Philadelphia, 1896, aged 54, formerly a Fellow of the American Medical Association, a member of the Washington State Medical Association, died at his home, January 8, from myocarditis

Benjamin F Farley, M D, York, Neb, Rush Medical College, 1870, aged 73, formerly a Fellow of the American Medical Association, and once vice president of the Nebraska State Medical Association, a veteran of the Civil War, died at his home, January 17, from pneumonia

Matthew O Ricketts, M D, St Joseph, Mo, University of Nebraska, Omaha, 1884, aged 60, a colored practitioner of St Joseph, a member of the Nebraska State Legislature from 1893 to 1895, died in St Joseph's Hospital, St Joseph, January 15, from disease of the intestines

Frank Beegle Statler, M D, Johnstown, Pa, Jefferson Medical College, 1889, aged 52, a Fellow of the American Medical Association, died in the Memorial Hospital, Johnstown, January 16, from abscess of the liver, ten days after an operation for appendicitis and cholecystotomy

Arthur Alonzo Vibbard, M D, Albany, N Y, New York Homeopathic Medical College, New York, 1894, aged 48, a member of the Medical Society of the State of New York, a specialist on diseases of the eye, ear and nose, died at his home, January 19, from pneumonia

Horace B Erb, M D, Allentown, Pa, Medico-Chirurgical College of Philadelphia 1888, aged 58, a member of the Medical Society of the State of Pennsylvania, a specialist in diseases of the eye, ear, nose and throat, died at his home, January 24, from pneumonia

Albert W Sharp, M D, Kettle, Ky, University of Louisville, Ky, 1888, aged 59, a member of the Kentucky State Medical Association, a member of the legislature from the Adair-Cumberland District in 1914, died at his home, about January 2, from pneumonia

Leon L Moye, M D, Vidalia Ga, Atlanta (Ga) College of Physicians and Surgeons, 1902, aged 38, a member of the Medical Association of Georgia, formerly a member of the faculty of the Atlanta School of Medicine, died at San Antonio, Texas, January 14

Stacy B Collins, M D, Seaford, Del, Jefferson Medical College 1876, aged 81, a member of the board of education and president of the board of health of Seaford, at one time a member of the state board of health, died at his home January 17, from paralysis

William Henry McLaughlin, M D, Hedrick Iowa, State University of Iowa, Iowa City, 1887, aged 53, formerly a Fellow of the American Medical Association, formerly a practitioner and druggist of Wester, Iowa, died at Springdale, Ark, January 13

Sidney Smith Pruitt, M D, Holland, Ky, University of Tennessee, Nashville, 1886 Barnes Medical College, St. Louis, 1899, aged 55, formerly a member of the Kentucky State Medical Association, died at his home, January 10, from pneumonia

Peter Alois Pfeffer, M D, St Louis, Barnes Medical College, St Louis, 1908, aged 40, formerly a member of the Missouri State Medical Association, died in St Anthony's Hospital, St Louis, January 4, from septicemia, due to the bite of a dog

Frederick Pollock Lane, M D, New Haven, Conn, Yale University, New Haven 1904, aged 36, a Fellow of the American Medical Association, a member of the staff of the Hospital of St. Raphael, died at his home, January 14, from pneumonia

Samuel J Covert, M D, Perrysville, Ohio, College of Physicians and Surgeons, Baltimore 1882, aged 65, formerly a member of the Ohio State Medical Association, died at his home, November 8, from cerebral hemorrhage

William H M Pearson, M D, Council, Ark, Memphis (Tenn) Hospital Medical College, 1908, aged 37, formerly a member of the Arkansas Medical Society, died in Memphis, Tenn, November 15, from cirrhosis of the liver

Isaac Jones Wells, M D, Nanuet, N Y, University of Nashville, Tenn, 1865, Bellevue Hospital Medical College, 1866, aged 77, for many years an appraiser in New York Customs House, died at his home, January 20

Rufus M Lemon, M D, Callaway, Va, Kentucky School of Medicine, Louisville, 1877, aged 60, formerly a member of the Medical Society of Virginia, died at his home, October 28, from chronic nephritis

Daniel Dwyer, M D, Dunmore, Pa, University of Michigan, Ann Arbor, 1891, aged 55, formerly surgeon of the Carbondale (Pa) Emergency Hospital, died at his home, January 9, from cerebral hemorrhage

Samuel J Dewey, M D, Breckenridge, Mo, Washington University, St Louis, 1871, formerly a practitioner and druggist of Springhill, a veteran of the Civil War, died at his home, January 10

Hiram Munson Boyd, M D, Manatee, Fla, Columbus (Ohio) Medical College, 1877, formerly a practitioner of LaMoure, N D, died at his home, January 7, from carcinoma of the intestines

Blin A Harris, M D, Norwich N Y, New York University, New York, 1885, aged 54, a Fellow of the American Medical Association, died at his home, December 24, from heart disease

John M Cooke, M D, Colorado Springs, Colo, Rush Medical College, 1887, aged 63, a Fellow of the American Medical Association, died at his home, January 14, from cardiorenal disease

Arvid Anderson, M D, New Britain, Conn, University of Michigan, Ann Arbor, 1892, aged 54, a Fellow of the American Medical Association, died at his home, January 10, from pneumonia

Otto Appley, M D, Damascus, Pa, University of Buffalo, N Y, 1880, aged 65, died in the Deer Park Sanitarium, Port Jervis, N Y, recently, after an operation for disease of the intestines

Jacob Bell Cornell, M D, Somerville, N J, College of Physicians and Surgeons in the City of New York, 1878, aged 65, died at his home, January 20, from cerebral hemorrhage

S R Wakefield, M D, Eugene, Ore, Willoughby (Ohio) Medical College 1846 aged 95, died at the home of his son in Creswell, Ore, December 13 from senile debility

Augustus W Harrington, Esther La (license, Louisiana), aged 76, formerly a druggist and practitioner of New Orleans and Rayne, La, died at his home, December 31

Wilfred Cumbermede Hummell, M D, Marysville, Ida, State University of Iowa, Iowa City, 1895, aged 44, died at his home, December 3, from heart disease

Herman F Klemp, M D, Topeka, Kan, Hahnemann Medical College, Chicago 1867, aged 79, died in a hospital in Topeka, January 16, from senile debility

George Carleton Hale, M D, New Bedford, Mass, Vermont Medical College, Rutland, 1891, aged 74, died at the home of his son in Providence, January 13

James Amos Fechtig, M D, Baltimore, Hahnemann Medical College, Philadelphia, 1871, aged 68, died at his home, January 18, from pneumonia

William Daniel Turvill, M D, Madison, Wis, Rush Medical College, 1882, aged 63, died at his home, October 15, from cerebral hemorrhage

Walter John Colgan, M D, Bridgeport, Conn, University of Georgetown, Washington, D C, 1913, aged 27, died at his home, December 1

Relief B Leeds Harding, M D, Long Beach, Calif, University of Michigan, Ann Arbor, 1884, died at her home, December 13

Achibald Mitchell Galbraith, M D, Hayward, Calif, Cooper Medical College, San Francisco, 1889, died at his home, December 30

John O Aldrich, M D, Bath, N Y, Eclectic Medical Institute, Cincinnati, 1883, aged 68, died at his home, January 18

Duncan S Allen, M D, Seneca, N Y, Albany (N Y) Medical College, 1865, was found dead in bed, December 23

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE WILLARD PYORRHEA TREATMENT

Oren Oneal's New Brand of Quackery Is Barred from the United States Mails

After defrauding the public of amounts estimated by federal investigators at $75,000 a year by means of a fake "cure" for pyorrhea, F W Willard, M D, D D S, has been denied the use of the United States mails Willard himself seems to have been merely a hireling, for the official report of the government declares that the owner of the business was Dr Oren Oneal Some of our readers will remember Samuel Hopkins Adams' characterization of Oneal in his "Great American Fraud" series At that time Mr Adams said

"If I were organizing an American Institute of Quack Specialists I should select Dr Oren Oneal of Chicago as the first president The artful plausibility of his advertising, his ingenuity in 'jollying along' the patient for his reluctant dollars the widespread familiarity of his features through the magazine advertising pages, and, above all, his sleek and polished personality, make him the natural candidate"

And more to the same effect Mr Adams went further He investigated Oneal's methods with some degree of thoroughness and when he brought to the quack's attention concrete examples of the disreputable methods employed, Oneal insisted that all Mr Adams had against him were "a few technicalities" To this Mr Adams responded

'Dr Oneal is proceeding on a false premise I have nothing against him, I found him a singularly agreeable and frank specimen of the genus Quack But every man, woman and child who reads his advertisements has this against him and against the magazines that print his stuff, that he is a maker of lying promises, a deliberate swindler, and a tamperer with blindness at the peril of others, for a fifty-dollar fee"

This was over ten years ago Eye-quackery stock having, apparently, taken a slump, Oneal has turned to tooth-quackery and the blatant advertisements of the Willard concern have for some time been an offense against decency and honesty

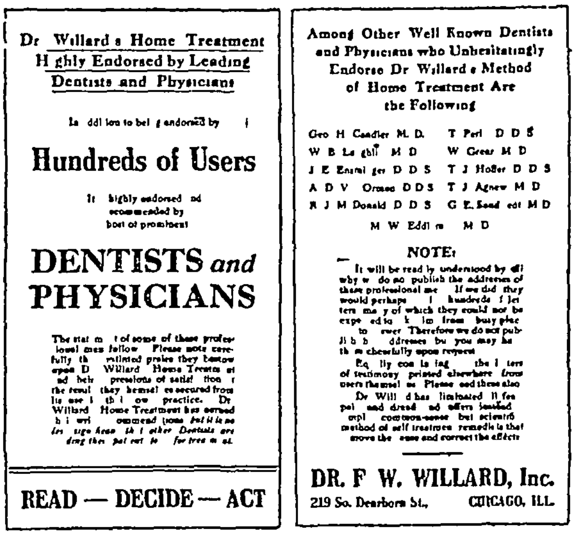
The company seems to have been incorporated under the Illinois law in 1912 At that time its president was one M L Katz who, it seems, had been engaged in the advertising business in a small way Willard was at first vice president and secretary, while Oneal was the third member of the corporate body In 1915, Oneal acquired Katz's interest and Willard became president with Oneal as general manager It was brought out in the government investigation that Willard received a salary for his services as "president and medical advisor" and claimed to have nothing to do with the business management of the fakery which he stated was under the sole direction of Oneal

In July, 1916, Willard was called on by the government to show cause on or before Sept 26, 1916, why a fraud order should not be issued against him and the company On the date set, Willard and Oneal presented themselves at the office of the solicitor of the Postoffice Department having as their legal representative one W M Ketcham of Chicago Ketcham apparently operates a business having the somewhat imposing name 'Federal Advisory Association" Ketcham was a postoffice inspector for a number of years but in 1910 went into business for himself The apparent object of the "Federal Advisory Association" is to furnish information, to those willing to pay for it, on the question of how they may use the United States mails without technically violating the law From other material in our files, it seems that the "Federal Advisory Association" also essays to offer suggestions on the wording of "patent medicine" labels and cartons

Francis W Willard was graduated by Marion Sims College of Medicine, St Louis, in 1891 This fact, verified by the records, is admitted in one of the Willard booklets which states further "After practicing medicine for some time he began the study of dentistry and was graduated from the dental department of the Washington University" Curiously enough, however, another piece of advertising sent out by the Willard concern is a photographic reproduction of Willard's alleged diploma from the dental college This diploma gives the date of his dental graduation as 1890—one year *before* he was graduated in medicine! According to our records, Willard was a dentist at Anna, Ill, for a number of years before coming to Chicago

PYORRHEA CURED BY MAIL!

The business of the Willard concern was the sale on the mail-order plan of a so-called home treatment for pyorrhea or Riggs' disease The treatment" consisted of five remedies, three to be taken internally and two to be used in the mouth The price asked was $5 for an amount sufficient to last thirty days if used in accordance with directions Advertisements placed in such newspapers and magazines as were not above participating in the profits of this fraud were the mediums by which Willard-Oneal got in touch with their victims The advertisements urged the reader to send for the free illustrated book and full information regarding the alleged treatment Those that sent for it received a small booklet with circular matter and an order blank The following quotations from the booklet indicate the character of the claims made for the treatment


Dr Willard s Home Treatment
Highly Endorsed by Leading
Dentists and Physicians

Hundreds of Users

DENTISTS *and* PHYSICIANS

READ — DECIDE — ACT

Among Other Well Known Dentists
and Physicians who Unhesitatingly
Endorse Dr Willard s Method
of Home Treatment Are
the Following

NOTE:

DR. F W. WILLARD, Inc.
219 So. Dearborn St., CHICAGO, ILL.

One of the circulars sent out by Willard professed to contain testimonials from leading dentists and physicians' together with the names of such physicians who had unhesitatingly endorsed' Willard's treatment Here are two pages of this circular reproduced in miniature

> I have originated and perfected my two fold treatment—a treatment which is both local and constitutional—which has had and is having such remarkable success I may claim in all modesty that I probably have treated more cases of Pyorrhea than any other dentist in this country and the fact that I have been so universally successful proves that my treatment is correct This is why you should pay close attention to one who knows the real and underlying cause of this trouble and who knows how and why it may be relieved by a simple, inexpensive home treatment
>
> Dr Willard's treatment is a two fold or combination treatment Dr Willard s treatment consists of remedies for relieving and counteracting the local conditions *in the mouth The first essential is absolute clean* liness and this is secured by ingredients carefully and scientifically compounded for this special purpose that kill the surface germs and render the mouth tissues antiseptically clean It was necessary to spend a great deal of time in experimentation before it was possible to produce a remedy that was at the same time very powerful as a germicide and cleanser and non irritating to the delicate mucous membrane of the mouth In addition to these qualities it contains the wonderful remedy Emetine, which is claimed by many noted authorities to be an absolute specific for Pyorrhea There is no alcohol or any harmful substance in it
>
> The next step after antiseptically cleansing the mouth and gums is to combat the diseased condition existing in the gums themselves This is accomplished by means of a medicated cream—extremely penetrating —that is gently rubbed into the gums with the finger Its effects are apparent almost at once and great relief may be confidently expected from the very start"

PLAYING ON FEAR

In all his "literature' Willard emphasized and kept ever before the mind of the reader the fact that some dental operations are accompanied by pain while his mail-order treatment was painless For instance

> Painful Operations and Treatment may Be Avoided'
>
> With Dr Willard s treatment there is absolutely no suffering of *any kind'*
>
> Loose and diseased teeth may be restored to their normal health and firmness without the least discomfort"
>
> The gums may be healed without the slightest pain'

The entire scheme is well set forth by Judge W H Lamar, solicitor for the Postoffice Department, in his memorandum to the postmaster-general recommending the issuance of a fraud order We quote freely from the memorandum

"The booklet contains a number of testimonials from persons who are alleged to have used Dr Willard's home treatment with success Nearly all of the testimonials relate to cases of pyorrhea which were in advanced stages, and a careful reading of the entire booklet unquestionably leads the reader to believe that the treatment in question will cure practically all stages of the disease In the booklet Dr Willard gives the customer certain alleged symptoms of pyorrhea, and by the use of these symptoms and the symptom blank already referred to the patient diagnoses' his own case Dr Willard states

> SYMPTOMS OF PYORRHEA OR RIGGS DISEASE
>
> It may be that you who read this are already in the clutch of this awful disease of Pyorrhea, sometimes called Riggs Disease and that you now know it If you are in doubt read the following pages whereon the symptoms are enumerated and make sure To conclude that Pyorrhea is not present when it is and to neglect immediate treatment on that account would indeed be a grave mistake and one which you might very well repent for the balance of your life Therefore, make sure Then act AT ONCE
>
> Read the following and determine how far the disease has advanced in your case

"Testimony of the experts at the hearing clearly shows that it is impossible for a patient to diagnose his own case for the reason that a diagnosis of pyorrhea requires considerable clinical experience, and further that it is impossible for a dentist to diagnose pyorrhea without examination of the patient Even when a personal examination is made it is possible for a dentist who is a beginner to mistake other mouth lesions for pyorrhea or vice versa It appears that gingivitis, caused by lack of care in the mouth, and certain catarrhal conditions will often simulate pyorrhea

"Reading of the booklet gives the impression not only that Dr Willard's home treatment will cure practically all cases of pyorrhea, even in advanced stages, eliminate all pain in connection therewith, and save the patient large sums of money which he would otherwise have paid to dentists but instills in the minds of patients who are in fact not suffering from pyorrhea in any form, fear of the disease

THE "TREATMENT"

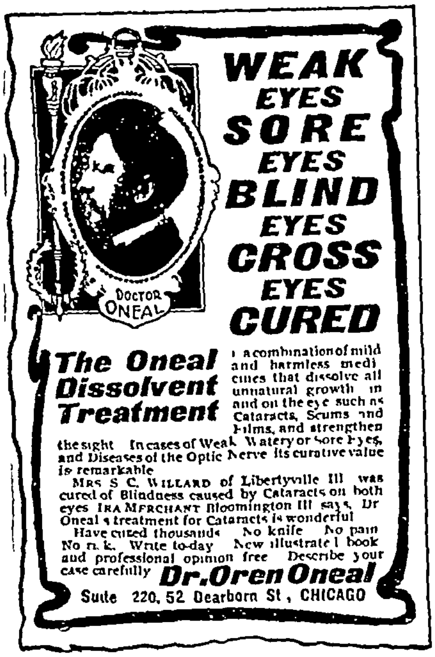
The ingredients in the Willard treatment were analyzed by the Bureau of Chemistry Department of Agriculture, and the government's report gives a detailed analysis of the preparations The findings of the government chemists can be summarized as follows

DR WILLARD S K-3 TABLETS—These were sugar coated tablets with a menthol flavor consisting essentially of the sulphocarbolates of zinc and calcium and a small quantity of the bismuth salt Practically half of the tablet was made up of a mixture of starch, sugar and talc

DR WILLARD'S L-2 TABLETS—These were light tan in color and contained washing soda baking soda Glauber salts and resins with a trace of colchicin Over 38 per cent of the tablets was a mixture of starch and talc

LAXATIVE LIVER TONIC TABLETS—These contained some laxative drug such as cascara aloes or podophyllin Over 70 per cent of the tablet was made up of a mixture of chalk, gypsum, talc and sugar

DR WILLARD'S DENTOL—These were tablets that the purchaser was told to dissolve in water and use the solution as a mouth wash Great stress was laid on the fact that the tablets contained emetin The federal chemists found that over 96 per cent of the tablets was made up of milk sugar and boric acid, while there were small quantities of menthol, thymol and eucalyptol The total ipecac alkaloids (emetin) found by the chemists was only fifteen-hundredths of 1 per cent The Willard concern claimed that paraform was also present in these tablets but it was not found



The Oneal Dissolvent Treatment is a combination of mild and harmless medicines that dissolve all unnatural growth in and on the eye such as Cataracts, Scums and Films, and strengthen the sight In cases of Weak Watery or Sore Eyes, and Diseases of the Optic Nerve its curative value is remarkable

Mrs S C. Willard of Libertyville Ill was cured of Blindness caused by Cataracts on both eyes Ira Merchant Bloomington Ill says, Dr Oneal s treatment for Cataracts is wonderful

Have cured thousands No knife No pain No risk Write to-day New illustrated book and professional opinion free Describe your case carefully **Dr. Oren Oneal**

Suite 220, 52 Dearborn St , CHICAGO

Photographic reproduction reduced of an old time advertisement of Oren Oneal in the heyday of his eye quackery

Dentifirm —This, Willard claimed was "something absolutely new to the dental profession—a massage preparation for the gums of rare medicinal, as well as unusual cleansing qualities' The federal chemists found that it was a mixture of glycerin, starch, borax chalk and soap flavored with oil of cloves and colored with a red dye!

Quoting from the solicitor's memorandum

'The treatment contains a small amount of emetin, one of the constituents of ipecac which in recent years has been brought forward as efficacious in the treatment of pyorrhea A difference of opinion exists among the profession as to the value of emetin applied subcutaneously by injection into the arm or by the use of a blunt needle forcing the solution into the pus pockets which are found about pyorrheal teeth The Willard treatment does not contemplate the use of emetin in either of these ways Instead, a small amount of emetin is put in the dentifirm paste with which the patient massages his gums The expert witnesses agreed that even were emetin possessed of value its administration in such small doses as are contained in the Willard treatment and in the manner prescribed would have no effect '

The government called oral surgeons, pathologists and dentists, all of whom agreed that Willard's home treatment administered by the patient himself at his home would be ineffective to cure or relieve pyorrhea An interesting feature of the government's investigation was the documentary evidence collected by Inspector D F Angier of the Chicago division, who as readers of The Journal will remember, has done particularly valuable work in investigating other medical mail-order frauds In the course of his investigations of the Willard concern Inspector Angier wrote to Willard, under various names, describing various mouth disorders, none of which indicated pyorrhea in any form In reply to all of his inquiries, the inspector received in every case the booklet 'How to Save Your Teeth, A Home Treatment for Pyorrhea" which has already been quoted from He also received the customary form letters and circular matter soliciting orders for the Willard treatment

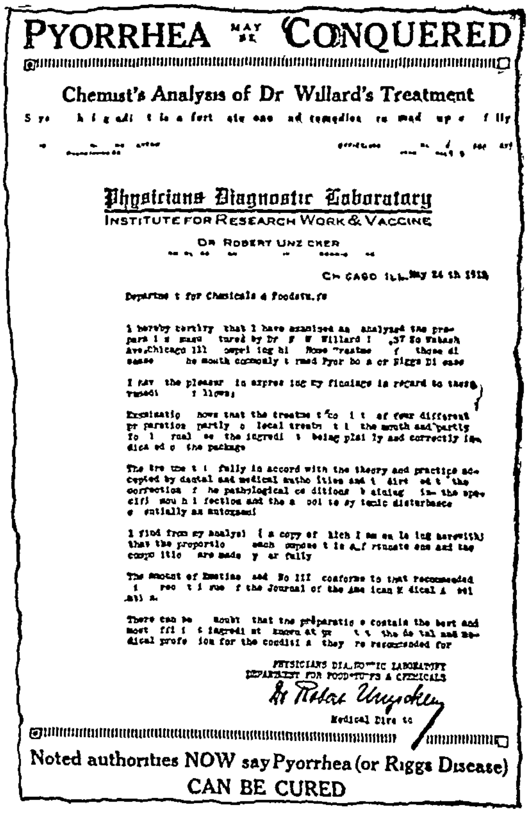
In one instance the inspector sent $1 for a "trial order" of the "treatment" The treatment was sent and thereafter Mr Angier received a series of form letters urging him to purchase the full treatment which was offered at $4, instead of the usual $5 In the particular instance in which this "trial treatment" had been sent, Willard had already acknowledged in a letter to Inspector Angier that the case described was not one of pyorrhea but a condition which the Willard treatment was not claimed to benefit To quote further from the solicitor's memorandum

"All of the letters received by the inspector in the course of the correspondence were signed 'F W Willard, M D D D S,' and even the form-letters have a decidedly personal tone calculated to lead the patient to believe that they were written by Dr Willard Dr Willard on cross-examination stated that he had no knowledge of the letter in which a case was diagnosed as a mild case of pyorrhea and it appeared as a matter of fact that a rubber stamp signature was used The rubber stamp was so excellent an imitation of Dr Willard's signature that he himself on cross-examination was unable to state whether letters had been actually signed by him or stamped There is no doubt that in all cases the patient thought he was receiving a personal letter from Dr Willard, and further that it was the intention of both the owners of the concern and Dr Willard to create the impression that the patient was receiving his personal attention and professional advice

SUMMARY

The whole scheme is well described toward the end of the solicitor's memorandum thus

"In summary, it may be said that the respondents are selling through the mails a worthless home treatment for pyorrhea to any one who will buy it, irrespective of whether or not he has pyorrhea, or, if he has pyorrhea, irrespective of whether or not it has reached that incurable stage which they admit exists, that in order to increase their business



PYORRHEA MAY BE CONQUERED

Chemist's Analysis of Dr Willard's Treatment

Physicians Diagnostic Laboratory
INSTITUTE FOR RESEARCH WORK & VACCINE
Dr Robert Unzicker

Chicago Ill. May 24 th 191

Department for Chemicals & Foodstuffs

Physicians Diagnostic Laboratory
Department for Foodstuffs & Chemicals
Dr Robert Unzicker
Medical Director

Noted authorities NOW say Pyorrhea (or Riggs Disease)
CAN BE CURED

One of the traditions of mail order quackery is that some sort of an analytical report should be published endorsing the treatment advertised The Willard Oneal concern held to the tradition Here is a reproduction greatly reduced of a self styled analysis of the Willard treatment issued by one Dr Robert Unzicker who did business under the imposing title Physicians Diagnostic Laboratory So far as our records show Unzicker is not a physician they are leading persons suffering from minor mouth disorders to believe themselves to be afflicted with pyorrhea, claiming it to be a 'loose term' whereas in fact it has a *definite medical significance that the public has already been* defrauded of several hundred thousand dollars through the operations of the respondents, and finally that if prompt steps are not taken to prevent further use of the mails by the respondents the public will not only be further defrauded, but those suffering from pyorrhea will be discouraged from securing proper treatment which might save the teeth if taken in time '

From the memorandum it seems that Willard and Oneal made a strenuous effort to continue taking in the $75,000 annually and submitted to the postoffice department a new set of advertising urging that they had completely modified the claims previously made They stipulated that if permitted to continue in business they would not advertise their treatment as for pyorrhea or Riggs' disease nor use the mails to solicit money for the sale of a pyorrhea treatment The solicitor of the Postoffice Department called attention to the fact that under the stipulations suggested, the Willard treatment could still be advertised and sold through the mails provided no mention was made of pyorrhea or Riggs' disease As Willard-Oneal had claimed throughout the hearing that the "Willard Treatment" was specially designed for the relief of pyorrhea, the suggested stipulation was a virtual admission that its sale for such a purpose was fraudulent The solicitor pointed out that it was difficult to understand why it should be deemed valuable for any other purpose than the one for which it was claimed to be specially prepared The memorandum closed with the following recommendation

"After a careful consideration of all of the circumstances of this case I am convinced that it is one in which the protection of the public demands the issuance of a fraud order I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises and therefore recommend that a fraud order be issued against the names appearing in the caption of this memorandum'

The fraud order was issued, Dec 28 1916

Correspondence

Compulsory Health Insurance Unnecessary as a Public Health Measure

To the Editor —In view of the fact that the propaganda for compulsory health insurance is made to rest largely on the assumption, which, however, is quite erroneous, that the health progress of countries under social insurance has been more pronounced or effective than the corresponding health progress of countries which have not established at least compulsory health insurance, such as the United States, Canada and Australia, or any one of the great South American republics, it may interest your readers to know that during the last twenty years the sanitary progress of the cities of New York and Berlin has been as follows

Comparing the period 1888 1892 with the period 1908-1912, since there are no trustworthy data of a later date for the city of Berlin, it appears that the general death rate of New York decreased from 25 8 per thousand to 15 5, or 10 3 per thousand, equivalent to 39 9 per cent The death rate of Berlin during the same period decreased from 20 9 per thousand to 15 1, or 5 8 per thousand, equivalent to 27 8 per cent The average death rate of both cities during the period 1908-1912 was practically the same It would therefore seem entirely erroneous to claim that the sanitary progress of the largest city of Germany was to a measurable extent affected by compulsory health insurance

The mortality from pulmonary tuberculosis in the city of New York decreased from 32 4 per 10 000 during the first five years of the twenty-year period to 18 1, or 14 3 per 10 000, equivalent to 44 1 per cent The corresponding decrease in the pulmonary tuberculosis death rate of Berlin was from 28 3 per 10,000 to 17 9, or 10 4 per 10 000, equivalent to 36 7 per cent The actual as well as the relative decrease in the pulmonary tuberculosis death rate was therefore more pronounced in the city of New York, *without* compulsory health insurance, than in the city of Berlin, where practically the entire wage-earning population is subject not only to the provisions of the compulsory health insurance law, but also to the even more drastic provisions of a compulsory invalidity insurance law It may be said in this connection that very little, indeed, has been done by sickness insurance societies in the direction of the prevention and cure of tuberculosis among wage earners What has been done in this direction has been almost exclusively in connection with invalidity insurance for the obvious reason that the comparatively short period during which medical attendance is provided would be of little, if any, real value in connection with the treatment of chronic or prolonged diseases

The mortality from typhoid fever, which is perhaps the most sensitive index of sanitary progress, decreased in New York City from 2 5 per 10,000 to 1 1, or 1 4 per 10,000 equivalent to 56 per cent The corresponding decrease in the typhoid fever death rate of the city of Berlin was from 1 4 per 10,000 to 0 3, or 1 1 per 10 000, equivalent to 78 6 per cent The actual reduction in the typhoid fever death rate of the city of New York was therefore greater than the corresponding reduction in the typhoid fever death rate of Berlin, which, however, has now been reduced so low that the mortality is practically negligible However, it requires to be considered that the city of New York has had to assimilate an enormous immigrant population aside from the fact that large numbers annually go on vacation and contract typhoid fever in unsanitary resorts etc It is a safe assumption that a large portion of deaths from typhoid fever in the city of New York at the present time are cases contracted outside of the city

An equally sensitive index of effective sanitary progress and control is the mortality from diphtheria and croup The *death rate from these diseases in the city of New York* decreased from 13 3 per 10,000 to 3 2, or 10 1 per 10,000, equivalent to 75 9 per cent The corresponding decrease in the death rate of Berlin was from 8 3 per 10,000 to 3 3, or 5 0 per 10,000, or 60 2 per cent The mortality from diphtheria and croup is now almost exactly the same in the two cities, and it may safely be asserted that the reduction has been achieved in both cities without any reference whatever to compulsory health insurance

A large amount of additional statistical and other evidence can be brought forward to prove that the sanitary or public health progress of the German Empire has not been in advance of corresponding progress made in this country or Canada or Australia Since the death rate is practically proportionate to serious sickness rate, it is a safe conclusion that the general health conditions of this country, with particular reference to wage earners, are, broadly speaking, more satisfactory at the present time than at any time in the past, and that therefore the establishment of compulsory health insurance as a public health measure is wholly unnecessary

Frederick L. Hoffman
Statistician, Prudential Insurance Company, Newark, N J

Blood Transfusion

To the Editor —In your answer to the inquiry of M Y D regarding blood transfusion in The Journal Nov 25 1916, it was stated that 'in November, 1666, according to the diary of Samuel Pepys, blood transfusion from one dog to another was performed" I should like to amplify your perfectly correct quotation for the benefit of M Y D and others interested in the subject

It was in February, 1665, that Richard Lower, while working in Thomas Willis' laboratory at Oxford, transfused blood from one animal to another Lower was "that expert anatomist" who had assisted Willis in his dissections of the brain and had drawn, with Christopher Wren, the later famous architect, some of the remarkable plates for Willis' celebrated book "Cerebri Anatome" It is thought that Wren first suggested the transfusion experiments following some infusion experiments which he had done in the Oxford laboratory

Lower's demonstrations were carried out before several of the Oxford doctors and a few months later before the Royal Society in London An account of Wren's early experiments with the help of Robert Boyle, the physicist, is found in No 7 of the *Philosophical Transactions of the Royal Society* for Dec 4, 1665, and Lower's transfusion before the Royal Society in No 20 Dec 17, 1666 Lower transfused first from vein to vein and later from carotid to jugular by the aid of a quill, using sheep for demonstration purposes During that same year M Denis and M Gayant performed similar experiments in France A letter from M Denis is published in No 25, May 6, 1667, of the *Transactions*

Interesting discussions on the dispute which arose at the time as to the priority of transfusion are also found in the *Transactions* for May 6 and Oct 21, 1667 It seems certain that as early as 1660 Wren, Lower and Boyle had carried out, at Oxford, experiments on infusion and later on transfusion of blood Boyle injected opium (through a quill into a vein), stupefying an animal It was not, however, until May 17, 1665, that a public demonstration of transfusion was held at the Royal Society in London The Royal Society notes that 'a Benedictine Fryer discoursed of it at M de Monmours, ten years ago," but there is no more evidence to strengthen this French claim The report of the Royal Society wisely concludes, "But whoever the Parent be, that is not so material as all that lay claim to this child should joyn together their efforts and cares to breed it up for the service and relief of human life, if it be capable of it, and this is the main thing aimed at and sollicited in this Discourse'

'In accordance with this sound advice transfusion experiments proceeded, and were soon carried out on human subjects For instance on November 23, 1667, transfusion was practiced in a medical case on one Mr Arthur Coga at Arundel House London, in the presence of 'considerable and intelligent persons,' by Dr Lower and Dr King, the blood of the sheep being used Their report states that the man after this operation as well as in it found himself very well, and hath given his own Narrative under his own hand enlarging more upon the benefit he thinks he hath received by it than we think fit to own to as yet " (Gotch, "Two Oxford Physiologists, Lower and Mayon," Oxford, 1908) The carotid of a sheep was connected to a vein in Coga's arm by a silver tube The full report appears in the *Philosophical Transactions* No 30, Dec 9, 1667

Henry Viets, M D, Oxford, England

Lack of Efficient Teaching in Urology

To the Editor —I have read, with interest and approval, Dr Irvine s "Notes on the Teaching and Treatment of Syphilis' (The Journal, Dec 30, 1916, p 1987) I agree with him that medical colleges are not preparing their graduates to combat syphilis effectively, and that a social injustice is thereby perpetuated

In urology, a like condition exists In over ten years' service at the North Hudson Hospital I have not found one intern who was really competent to treat gonorrhea or to use the catheter And most of them came from New York medical schools, which certainly do not lack material for teaching clinical urology

These men are familiar with the cystoscopic appearances of the bladder, and know the indications for and technic of such operations as nephrectomy and prostatectomy They have been taught major procedures which few of them will ever have occasion or desire to perform, but not how to meet the every-day urologic problems of a general practice

Not a few recent graduates, therefore, progressive in everything else, even syphilis, treat urethral disease as their forefathers did For gonorrhea they prescribe the same old balsamics and gastro-irritants and the same astringent injections, spoiling their patients' stomachs and laying the foundations for infiltrations and strictures, but not actually curing the disease

This is not the fancy of an alarmist It is a sober estimate of existing conditions, based on a fair sized urologic practice In the cities, conditions are better than formerly, owing to the great recent development of urology Many city practitioners habitually refer their urethral patients to the urologist, and many patients go to him directly

The safe and proper technic of urethral instrumentation and irrigation are a matter of manual training, to be acquired by plenty of actual work done under expert supervision The genito-urinary clinics of our large medical centers offer more than enough material for practice

The responsibility for this lack of training lies with the colleges C L DeMeritt, M D, Hoboken N J

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer s name and addres but these will be omitted on request

TREATMENT OF CEREBRAL HEMORRHAGE

To the Editor —One of my patients, a woman aged about 68 has partial paralysis of the left side due, I think to cerebral hemorrhage I should like to know the latest accepted treatment of this condition

G M H, M D, Lancaster Ky

Answer —It is exceedingly difficult to advise regarding the treatment of a person without more complete details of history and physical findings, since each patient presents a special problem Presumably this patient is partially paralyzed from 'cerebral hemorrhage' with no other complications

This is the commonest cause of the condition described by our correspondent Embolism or thrombosis of cerebral arteries may also give a similar result In general the treatment should consist of rest in bed immediately following the attack The bowels should be moved if necessary with a mild cathartic Good nursing care is important and adds to the comfort of the patient In the days immediately following the onset of paralysis, the position of the patient should be changed from side to side at intervals The use of inflated rubber rings and cotton pads will assist in preventing pressure necrosis of the skin of the back, heels, etc Later in the course, massage and passive motion will aid in preventing contractures

Other special features of the individual case may call for changes or additions in treatment Arteriosclerosis is frequently accompanied by cardiac hypertrophy and increased blood pressure, and, in plethoric persons, bleeding has sometimes been advised to reduce blood pressure Cerebral hemorrhage may, however, occur in persons in whom arteriosclerosis is not accompanied by greatly increased pressure The possibility of syphilis as a cause of the arteriosclerosis should be investigated, and when it is found, iodids and later mercury are indicated Small doses of iodids are often advised in nonsyphilitic arteriosclerosis

Other causes of hemiplegia of central origin, such as tumors, in a person over 60, usually give rise to additional symptoms and physical signs which will be discovered in the course of the routine examination which should be made of every patient no matter what the complaint

While cerebral hemorrhage with resultant hemiplegia may often result fatally in the first attack, the patient may recover the use of the extremities to a surprising degree, and by living a quiet life with moderation in all respects, may exist in comfort for years

INCOMPATIBLE DISEASES

To the Editor —Can you give me the title of any books or articles on diseases incompatible to each other *that is* diseases which cannot exist in the human body at the same time?

F W S

Answer —The following is a list of articles on this subject

Gerhardt D Ueber gunstige Beeinflussung chronischer Erkrankungen durch interkurrente Infectionskrankheiten *Mitt a d Grenzgeb d Med u Chir* 1912 **25**, 578 586

Hutchinson, J Hunterian Lecture on the Laws of Partnership in Disease *Lancet* London, 1891 **2**, 860 864

West S Chorea Cured by Typhoid Fever *St Barth Hosp Rep* 1886 **22**, 224

Moran J F Antagonism of Erysipelas in Disease, *Virginia Med Month* 1894 1895 **5**, 59 66

Bury J S Cases Illustrating the Apparent Beneficial Effect of One Disease on Another, *Med Chron* 1907 **46**, 277 280

Dufour L Antagonisme entree la diphterie et la fievre typhoide *Normandie méd* 1897 **12**, 440

Discussion of Beneficial Effects of One Disease on Another *Chir Jour* 1898 **12**, 17 57

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Connecticut Regular New Haven March 13 14 Sec, Dr Charles A Tuttle 196 York St New Haven

Connecticut Homeo New Haven March 13 Sec Dr Edwin C M Hall, 82 Grand Ave New Haven

Connecticut Eclectic New Haven March 6 Sec Dr T S Hodge 19 Main St Torrington

Illinois Chicago Feb 21 23 Sec Dr C St Clair Drake Capitol Bldg Springfield

Kansas Topeka Feb 13 Sec Dr H A Dykes Lebanon

Maine Portland March 13 14 Sec Dr Frank W Searle, 776 Congress St Portland

Massachusetts Boston March 13 15 Sec Dr Walter P Bowers *Room 501, No 1 Beacon St, Boston*

Vermont Montpelier Feb 13 Sec Dr W Scott Nay Underhill

Arizona July Report

Dr John Wix Thomas secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix July 5 6, 1916 The total number of subjects examined in was 10, total number of questions asked 100, percentage required to pass, 75 The total number of candidates examined was 11, of whom 8 passed, including 1 osteopath, and 3 failed The following colleges were represented

College	Year Grad	Per Cent
PASSED		
College of Physicians and Surgeons Los Angeles	(1916)	79 5
University of California	(1916)	80 6
Bennett Medical College	(1914)	78 1
Northwestern University	(1914)	85 6
Rush Medical College	(1915)	82
John A Creighton Medical College	(1916)	75 7
University of Virginia	(1912)	79 4
FAILED		
Arkansas Industrial University	(1884)	51 6
University of Louisville	(1916)	73 2
Baltimore Medical College	(1913)	66 6

Utah July Report

Dr G F Harding, secretary of the Utah State Board of Medical Examiners, reports the oral and written examination held at Salt Lake City, July 5-6 1916 The total number of subjects examined in was 19, total number of questions asked 100, percentage required to pass, 75 The total number of candidates examined was 5, all of whom passed including 1 osteopath Five candidates were licensed through reciprocity The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Rush Medical College	(1916)	87
University of Illinois	(1916)	87
Barnes Medical College	(1911)	76
Washington University	(1916)	81 9

College	Year Grad	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Colorado	(1914)	Colorado
George Washington University	(1910) (1911)	Dist Colum
Iowa College of Physicians and Surgeons	(1892)	Nebraska
University of Virginia	(1897)	Idaho

New York September Report

Mr H H Horner, Chief, Examinations Division of the New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse, Sept 19-22, 1916 The total number of subjects examined in was 8, total number of questions asked, 80, percentage required to pass, 75 The total number of candidates examined was 146, of whom 89 passed and 57 failed, including 1 osteopath Fourteen candidates were licensed through reciprocity, three were granted reregistration licenses and 1 candidate was licensed because of eminence and authority in the medical profession The following colleges were represented

College	Year Grad	Total No Licensed
PASSED		
University of Alabama	(1909)	1
Yale University	(1912) (1916)	2
Georgetown University	(1914)	1
Johns Hopkins University	(1910 2) (1911) (1914)	4
University of Maryland	(1915 2) (1916,2)	4
Harvard University	(1914) (1916)	2
Detroit College of Medicine	(1911)	1
Albany Medical College	(1914 2) (1915 3) (1916 4)	9
Columbia University	(1909) (1914 2) (1915 3) (1916 7)	13
Cornell University	(1914) (1915,2) (1916 3)	6
Fordham University	(1913) (1915 2) (1916 4)	7
Long Island College Hospital	(1915) (1916,5)	6
New York Homeopathic Medical College and Flower Hospital	(1914 2) (1915,4) (1916 5)	11
Syracuse University	(1916)	1
University and Bellevue Hospital Medical College	(1913) (1914) (1915 3) (1916 3)	8
University of Buffalo	(1915) (1916,2)	3
Jefferson Med Coll of Philadelphia	(1912) (1913) (1916,2)	4
University of Pennsylvania	(1916)	1
Woman s Med Coll of Pennsylvania	(1914) (1915)	2
University of Vermont	(1915)	1
University of Toronto	(1914)	1
McGill University	(1915)	1
FAILED		
Chicago College of Medicine and Surgery	(1914)	1
Illinois Medical College	(1898)	1
Northwestern University	(1915)	1
University of Louisville	(1914)	1
Tulane University of Louisiana	(1911)	1
Baltimore Medical College	(1913)	1
College of Physicians and Surgeons Baltimore	(1912)	1
University of Maryland	(1916)	1
Harvard University	(1913)	1
Tufts College	(1905) (1915)	2
University of Michigan Medical School	(1909) (1916)	2
Albany Medical College	(1912) (1914) (1915) (1916)	4
Columbia University	(1914) (1915 2)	3
Fordham University	(1913) (1914) (1916,3)	5
Long Island College Hospital	(1915)	1
New York Homeopathic Medical College and Flower Hospital	(1914 3) (1915 5) (1916 4)	12
New York Med Coll and Hosp for Women	(1913) (1915)	2
Niagara University	(1898)	1
University and Bellevue Hospital Medical College	(1916)	1
University of Buffalo	(1914)	1
Jefferson Med Coll of Philadelphia	(1908) (1912) (1916)	3
Medico Chirurgical College of Philadelphia	(1915) (1916)	2
Woman s Medical College of Pennsylvania	(1916)	1
University of Vermont	(1912) (1916)	2
University of Toronto	(1916)	1
University of Bonn Germany	(1889)	1
University of Naples Italy	(1905)	1
Syrian Protestant College Beirut	(1912)	1
University of St Joseph, Beirut	(1894)	1

College	Year Grad	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Maryland	(1914)	New Jersey
Boston University	(1900)	New Jersey
Fordham University	(1915)	New Jersey
N Y Homeo Med Coll and Flower Hosp	(1893) (1915)	New Jersey
	(1915)	Virginia
Syracuse University	(1915)	Delaware
Cleveland Homeopathic Medical College	(1905)	Ohio
Starling Ohio Medical College	(1914)	Ohio
Western Reserve University	(1904)	Ohio
Hahnemann Med Coll and Hosp of Philadelphia	(1906)	Virginia
Medico Chirurgical College of Philadelphia	(1904)	New Jersey
University of Virginia	(1915)	Virginia
University of Palermo Italy	(1902)	Michigan

Stronger Tests for Drugless Healers

The Illinois State Board of Health has ruled that drugless healers are to be given the same examination as physicians, except in surgery, obstetrics materia medica and therapeutics Drugless healers are not authorized by law to practice operative surgery or obstetrics nor are they to use drugs or medicines internally in their practice Examination papers on "practice" are to be graded by members of the various schools of healing selected by the state board of health for that particular purpose Formerly drugless healers were given a comparatively simple examination in anatomy, chemistry physiology, pathology and histology symptomatology, and hygiene The examination now covers seven groups of subjects anatomy, chemistry, etiology and hygiene, physiology and neurology, pathology and bacteriology, physical diagnosis ophthalmology and otology, and pediatrics, gynecology, laryngology, rhinology and medical jurisprudence, and practice

New Jersey and Chiropractic Colleges

The Department of Public Instruction of New Jersey states that the New York School of Chiropractic, located in New York, and supposedly operating under a New Jersey charter, has not been chartered or registered in New Jersey, and that the New Jersey College of Chiropractic, located at Newark, N J, although chartered in the state was, on May 1, 1915 refused permission by the state board of education to grant degrees

Book Notices

THE TREATMENT OF DIABETES MELLITUS With Observations on the Disease Based on 1 000 Cases By Elliott P Joslin, M D Assistant Professor of Medicine Harvard Medical School Cloth Price, $4 50 net Pp 440, with illustrations Philadelphia Lea & Febiger, 1916

'In writing this book," the author says, "I have tried to record those facts which have proven of service to me in the treatment of diabetes," and it is in this sense that the title gives a true index of the scope of the work, for the writer has by no means limited himself to the discussion of those things which in a narrower sense would be classified under the heading of treatment It represents in reality a summation of the work done by Dr Joslin and his co-workers on the subject of diabetes "For the benefit of my patients," he adds, 'it has seemed worth while to summarize my work with them during the last eighteen years, and I have honestly tried in these pages to let the 400 fatal cases tell their useful lessons to the 600 living"

Whereas in addition to such able and well known foreign treatises as those of Naunyn, Lepine and von Noorden, there have appeared within the last four years three other volumes on diabetes from the pens of American writers, while a fourth is in course of preparation, making in all five American books on diabetes within as many years, one may properly ask what new or special phase of the subject or what improvement in the method of exposition this one is designed to present "I would not have wished to write a book on diabetes three years ago," says Joslin, "today it is a pleasure and an inspiration because the improvement in treatment is beyond question The introduction of fasting and the emphasis on physical exercise by Dr F M Allen, of the Rockefeller Institute for Medical Research, has decidedly changed the outlook for this class of patients It is encouraging to be able to report that during the last year the mortality of my patients was approximately 20 per cent lower than for the previous years" A fresh presentation of the subject of treatment, with particular reference to the use of inanition and exercise, as taught by Allen, is, then, the distinguishing feature of this book

There are seven sections the first (sixty pages) after preliminary definitions and distinctions between diabetic and other forms of glycosuria, in which prominence is given to the views of Allen is devoted to statistics relating to diabetes Conditions relating to diabetes within the United States receive a fuller exposition in this section than they have yet had elsewhere, and some new ground is covered It will be found of value particularly to American readers for reference purposes The second section of the book (seventy-seven pages), entitled "Important Factors in the Treatment of Diabetes" consists of subsections devoted to a variety of subjects, such as "Naunyn's Conception of Diabetes Mellitus", "Allen's Hypothesis Diabetes—A Weakness of the Pancreatic Function' , Is the Tendency of the Diabetic Glycosuria to Increase? , "If the Urine of the Diabetic Patient is Sugar-Free, the Tolerance for Carbohydrates usually Improves", "Hyperglycaemia" (twelve pages), based largely on original observation and recent American literature, "Blood Fat" (five pages), written by Prof W R Bloor of the Harvard Medical School and "Metabolism in Diabetes' (thirty pages), containing a discussion of the total metabolism in diabetes, observations on the respiratory quotient and a consideration of contingent topics based on the studies of Benedict and Joslin on individuals in the fasting and diabetic states This section ends with a chapter on acidosis In the sense that all obtainable knowledge of diabetes may prove of service in the treatment of cases, the material of this section bears on treatment some of it directly But it is of interest more especially from the standpoint of physiology Some features of this section will be referred to again The third section is on methods of examining the urine, blood and respirations The fourth section (twenty-eight pages) is devoted to principles of dietetics with special reference to diabetes The fifth section (130 pages) takes up the treatment proper

The use of inanition and the views of Allen are fully presented with many citations of cases The sixth section, referred to in the preface as a "diabetic's primer," has a content indicated by the following captions "What Every Diabetic Should Know", "Directions for Nurses in Charge of Diabetic Patients", "A Diabetic History Chart for the Use of Institutions and Physicians", "Chart for Dietary and Urinary Records", "Actual Diets Employed to Render Patients Sugar-and-Acid-free", "Hospital Treatment", 'Ambulatory Treatment," etc The last section contains food and diet tables, recipes, menus, methods of recording hospital diets and tables of equivalents

The book as a whole forms a compact, well printed volume written in an intimate, readable style It is interesting to note a transition in the character of the writer's work from the earlier to the later periods, for the first part of the book patterned unmistakably after Naunyn and reflecting a time in the development of American medicine when statistical clinical studies of the Oslerian type prevailed, contrasts noticeably with the latter sections, based largely on the yield of an intensive experimental study If in the past American writers have had just cause to complain of a neglect of their work by foreigners, they will have none here The American literature receives all the credit due it, not to say more That diabetes implies a weakness of the pancreatic function is an idea ascribed to Allen

The discussion of treatment based largely on the extended use of inanition and the emphasis on physical exercises by Allen is full, clear and illumined by many original comments based on a wealth of clinical material, handled with system and scrupulous exactness of detail It is a significant contribution to clinical medicine Noteworthy are the specific directions for the graduated increase of diets without causing recurrence of symptoms in cases of severe diabetes which have been rendered sugar-free by fasting The method of building up first the carbohydrate of the diet, then the protein, then the fat, the emphasis laid on the importance of finding and not exceeding the tolerance for fat, and of keeping the total food allowance within narrow enough limits will doubtless explain to many who have failed to keep patients with severe diabetes free of symptoms why they have failed On the other hand out of 184 cases treated in twenty-four years by fasting, there were thirty-one fatalities, twenty-one of the patients dying in typical coma, the rest with complications such as coma and gangrene 1, uremic coma, 1, appendicitis, 2, carbuncle, 1, pulmonary embolism, cancer, anuria, tuberculosis, each 1, cardiac, 2 Dr Joslin however, does not admit that in any of these the fasting treatment, properly carried out hastened the end In this connection it should be said that fasting practiced by other clinicians, and even by some who are not open to criticism on the score that they have not carried it out intelligently, has nevertheless been observed to shorten life in a certain small fraction of cases It will doubtless continue to be felt by some that human individuals in certain conditions can be injured or killed by withholding food and that if such persons, in addition to their other ailments, should happen to have a deficient pancreatic function besides, they may still be injured by fasting This might be said to apply to some pluriglandular complexes with goiter and to all end-stages of inanition itself It is to be regretted that in this book the writer has not set out with equal clearness, over against the indications for inanition, those situations in which it is no longer of any value or in which it may perhaps prove to be contraindicated

The sections devoted to topics of interest chiefly from scientific points of view are useful especially because they contain many new and valuable clinical data and convenient collections of the recent published work of American writers

This book will enable any physician who has diabetic patients under his care, and who will carry out the directions given, to obtain better results with his cases than are obtained by ninety-nine out of a hundred practitioners at the present time It may be placed in the hands of nurses and patients with the result that the physician will receive intelligent cooperation and execution of his general orders, relieving him and his patients of annoyance and loss of time It will thus perform a high humanitarian service It is, moreover, a storehouse of data for the investigator to draw on when desired, and there will be few persons interested in diabetic metabolism from any standpoint at all who may not learn something of value from reading it through

Social Medicine, Medical Economics and Miscellany

Quackery in Switzerland

In 1914, Dr H Hunziker of Basel sent out a question blank to several hundred physicians in Switzerland asking for data on the quacks in their vicinity—the numbers, names former occupations the diseases they claim to treat in particular, their remedies, whether their clients are natives or tourists, and whether they treat by correspondence He reports in the *Correspondenz-Blatt fur schweizer Aerzte*, Sept 23, 1916 that most of the blanks were returned, and he comments on the data thus obtained They show that in the different cantons there are from 0 08 to 6 04 quacks per 10,000 inhabitants Two of the cantons place practically no restrictions on the practice of medicine, and one has 134 6 quacks to every hundred physicians In the whole country there are 198 known quacks to 2 500 registered physicians, that is, 7 4 professional quacks to every hundred physicians The laws in regard to the practice of medicine and advertising and sale of proprietaries differ widely in the different cantons which renders it particularly difficult to combat evil practices Important progress was realized in 1900, when a central committee was organized to pass on proprietaries To date eleven cantons have joined this organization The central committee consists of a physician a pharmacist and a chemist They are appointed by the public health authorities of the canton of Zurich and have a laboratory at Zurich where they examine all secret medicines and pharmaceuticals sent in for the purpose by the cantonal boards of health They are tested for possible injury to health, suitable composition fraud in advertising in labels and circulars, and selling price as compared with the value The report on each is distributed to each of the cantonal boards of health and also to the national public health service Up to April, 1916, they had thus reported on 921 proprietaries The reports are published in the official weekly bulletin for Switzerland, the *Sanitarisch Demographische Wochenbulletin* Hunziker calls on the medical societies of the cantons to watch for neglect or lax enforcement of existing regulations on these evils unpleasant as the task may be We must bend our efforts further to have the gaps in the existing laws filled up From one canton which puts no restraint on these practices, the whole country is flooded with the quacks' circulars By looking up the past records of the quacks means can often be found to drive them out of the country It is the duty of the state to protect its citizens against fraud"

He outlines further a plan for a propaganda, enlightening the public by lectures, press articles, pamphlets etc 'We must not wait for such opportunities, we must make them We physicians are the leaders of the people in hygienic questions It is our duty to enlighten them in the field of care of the health People long for general information on such matters and they have a right to it, and if we do not supply it the quacks will The hygiene commission of the Swiss *Gemeinnutzige Gesellschaft* has decided to issue a pamphlet on quacks and the fight against them In conclusion Hunziker advocates founding some central office where quacks' advertisements and literature can be collected and used for propaganda purposes, placed at the disposal of physicians Here should be collected data about quacks, their former lives and records in general The medical society in each canton should appoint some member who should collect all data on quack practices and examine newspapers, etc The advertisements of quacks outside the canton should be sent to the central office for further investigation Some quacks advertise in papers outside their own canton, and nothing is known in their home town of their practices The board of health of Basel has offered to serve as the central antiquack office He adds, "A weapon has finally been found against registered physicians who stoop to cooperate with quacks Nothing is so detrimental to the prestige of the profession as this The right to practice medicine was recently withdrawn by the Basel court from a physician who was working with a quack, and the court of appeals has confirmed the decision"

Industrial Pensions in Sweden

Regulations for the inauguration of the largest private pension project in the history of Sweden were promulgated, Nov 19, 1916, at a meeting of the superior board of managers of Swedish industrial associations and various chambers of commerce according to U S Consul B M Rasmussen at Goteborg (*Commerce Reports* Jan 2, 1917)

Men pay 10 per cent of their salaries for their own pensions and 6 per cent for family pension Men from 21 to 34 women from 18 to 30, and new employees under 47 and 42, respectively are required to insure themselves Men are eligible to full pensions at 62, when they are to be paid 60 per cent of the salary received at the age of 47, no pension being computed on a salary higher than 5,000 crowns ($1,340) Those persons joining the association between 34 and 42 may receive the full pension at 63 and 65, respectively, provided they reached their maximum salaries at 42 Irrespective of the age of joining the association or of receiving the maximum salary pensioners may receive the full pension by paying premiums required in excess of the fixed maximum dues All male members whether married or single, are obliged to contribute to the family pension fund A family pension is computed at 25 per cent of the head of the family up to 5 000 crowns Children surviving both parents are entitled to a pension up to 18 A member when he reaches the pension age, unmarried and active, is to be reimbursed for all sums he has contributed to the family pension fund

As women live longer than men, their premium is 12 per cent They are entitled to full pension at 57, provided they reach their highest compensation before 38 Membership is compulsory for all employees of concerns whose owners are members Employees may be exempted if they already carry life insurance and are unable to pay additional dues

Primary Sarcoma of Pancreas

In the *Clinical Journal* Nov 22, 1916, H M Fletcher cites a case of primary round-cell sarcoma of the pancreas with metastases occurring in a boy, aged 17, who was admitted to the hospital with the following history Four months previously he suffered with pains in his chest and thighs, but he had not been away from military duty on that account Three weeks prior to admission he was affected with left facial paralysis, which was preceded by a feeling of numbness on that side of the face A week before admission the pains in the chest and thighs became much worse, the patient was constipated, but there was neither headache nor vomiting His past history was good, he had suffered from no serious illness The diagnosis was pleurisy Fletcher felt that the patient's condition was due to something much more serious than a slight attack of pleurisy coinciding with Bell's palsy He came to the conclusion, wrongly as it proved, that he was suffering from acute general tuberculosis with tuberculous meningitis This diagnosis appeared to explain the general symptoms, such as pyrexia, headache and vomiting, and also the facial paralysis The diagnosis of tuberculous meningitis was apparently confirmed by the examination of the cerebrospinal fluid and by the blood count associated with an increase of lymphocytes The postmortem examination proved it to be a case of primary sarcoma of the pancreas The meningeal symptoms were due to a minute hemorrhagic secondary growth in the dura, involving the bone There were also secondary growths in the kidneys, parietal bone, orbital plate dura mater, glands of the neck and axilla

Medicolegal

What Deemed "Personal Injury" to Employee—Erysipelas After Frostbite

(Larke vs. John Hancock Mut. Life Ins. Co. et al. (Conn.), 97 Atl. R. 320)

The Supreme Court of Errors of Connecticut affirms a judgment sustaining an award under the workmen's compensation act in favor of the claimant whose husband had been in the employ of the company soliciting insurance and collecting insurance premiums. There was a finding that the unusual exposure of the man's employment to the weather caused a frostbite producing lesions of the face, through which the germ of erysipelas entered and that disease developed, from which he died. The Court says that the first question for decision was whether the frostbite was a personal injury "arising in the course of and out of his employment." The conclusion is that it was. The Court thinks that the lesion, whether produced by a frostbite or a blow, must be held to be a personal injury within the workmen's compensation act. In either case the injury would be the result of an untoward mishap. If the term "personal injury" be given its narrowest construction and confined to injuries of accidental origin it must be held to include any form of bodily harm or incapacity, whether arising by direct contact, or lesion caused by external violence or physical force, or untoward mishap. An attempt to frame an all-embracing definition so as to include all injuries arising in the course of one's employment would probably prove its inadequacy under the changing conditions of time. In a general way, sufficient for this case, and perhaps helpful in the consideration of other cases, the Court may say an injury to an employee is said to arise in the course of his employment when it occurs within the period of his employment, at a place where he may reasonably be, and while he is reasonably fulfilling the duties of his employment, or engaged in doing something incidental to it. An injury which occurs in the course of the employment will ordinarily arise out of the employment, but not necessarily so. The term "arising out of" in this act, points to the origin or cause of the injury. Speaking generally, an injury arises out of an employment when it occurs in the course of the employment and as a proximate result of it. If the primary injury arises out of the employment, every consequence which flows from it likewise arises out of the employment. The chain of causation may not be broken. Every injurious consequence flowing from it is a part of this chain. It was immaterial that erysipelas does not ordinarily result from frostbite, it was enough if in this instance it was caused by it. All physical consequences and disease result from an injury when there is a causal connection between them.

Revocation of License for Conviction of Offense Involving Moral Turpitude

(State Board of Medical Examiners vs. Harrison (Wash.), 159 Pac. R. 769)

The Supreme Court of Washington finds no merit in the appeal of the defendant and affirms a judgment of the superior court affirming an order of the state board of medical examiners, which order revoked the license of the defendant to practice medicine as an osteopath within that state. The Court says that it appeared that a complaint was filed with the board charging that the defendant had been convicted of an offense involving moral turpitude in that she had been indicted and convicted in the United States District Court at Seattle for "knowingly by means of the United States mail, giving notice and information" to certain persons named when, how, and by whom and by what means an abortion could and would be done and performed and produced." The statute provides at Section 8397, Rem. & Bal. Code of Washington, that "Whenever any holder of a certificate herein provided for is guilty of unprofessional conduct, as the same is defined in this chapter, and said unprofessional conduct has been brought to the attention of the board granting said certificate, in the manner hereinafter pointed out it shall be their duty to, and they must revoke the same at once, and the holder of said certificate shall not be permitted to practice medicine and surgery, or osteopathy, in this state." Section 8397½ provides that "The words 'unprofessional conduct,' as used in this chapter, are hereby declared to mean First. The procuring, or aiding or abetting in procuring a criminal abortion. Fifth. Conviction of any offense involving moral turpitude, in which case the record of such conviction shall be conclusive evidence." The defendant contended that the provision that a conviction of any offense involving moral turpitude shall be conclusive evidence is void unless it shall be construed to mean that the state board of medical examiners or the courts may inquire into the facts and circumstances attending such former conviction for the purpose of ascertaining if the offense for which the person was so convicted is one involving moral turpitude. The defendant contended that this provision is a rule of evidence, and not of what is termed substantive law, and from this it was argued that it is the duty of the Court to hear the evidence and determine as a question of fact irrespective of the former conviction, whether the accused is really guilty of an offense involving moral turpitude. But whether the statute under consideration is a declaration of substantive law or a rule of evidence the Court holds is of no importance, for the Court is satisfied that the legislature has no power to declare either a rule of law or a rule of evidence in a case of this kind. The Court is satisfied that the legislature had the power and authority to pass the statute under consideration, and that it was the duty of the state board of medical examiners, when the conviction was admitted, to cancel the defendant's certificate. In such a case as this there is no discretion, either in the board or in the Court as to the penalty. The statute provides that it shall be the duty of the board to revoke the license to practice medicine in the state. That is the only penalty. It was also argued that the term "moral turpitude," as used in the statute, is so vague and uncertain as to render the law unreasonable and void, but those words are capable of accurate definition and are well understood, as was determined in re *Hopkins*, 54 Wash. 569, 103 Pac. R. 805.

Death From Accidental Septic Poisoning

(Merrick vs. Travelers Insurance Co. (Mo.), 189 S. W. R. 392)

The Kansas City (Mo.) Court of Appeals affirms a judgment in favor of the plaintiff, the widow of a practicing dentist who died while insured by the defendant under an accident policy which was stated to cover "septic poisoning the result of external inoculation through accidental contact with septic matter." The court says that the evidence of the plaintiff disclosed that the insured was apparently in good health, but had been afflicted for two weeks or more with a slight cold and its attendant inflammation of the nasal mucous membrane, though the cold and inflammation had almost disappeared at the time of his alleged infection. He was working in his office on the teeth of a patient who was suffering from a virulent and advanced attack of *pyorrhea*, when the patient suddenly coughed with explosive violence ejecting a spray of saliva into the insured's face. The next day the insured and the plaintiff attended a matinee, and on leaving the theater he complained of a headache. After returning home, the pain, which was in the forehead just above the nose, seemed to increase and extended around to the ear. He slept little that night. The next day he dressed but reclined all day and suffered from the pain, which did not abate. The next morning, which was Monday, he went to the office to keep an appointment, but returned home at 1 o'clock in a taxicab and was suffering intensely from the pain in his forehead and ear. He went to bed and had the family physician called. Constantly but gradually he grew worse and died about three months after he became bedfast. Epidemic spinal meningitis was prevalent in the city, and the insured exhibited many symptoms of that disease, and the attending physician certified that it was the cause of his death. The symptoms of the insured also were similar to those of certain syphilitic attacks. The plaintiff's evidence, however, dealt with every possible cause of diseases manifested by the symptoms of the one in question, and definitely excluded from the sphere of reasonable inference all other causes than that alleged namely, that virulent germs which were a part of septic matter were accidentally brought into the nasal passage, where by natural processes they thrived multiplied and found their way to the brain producing a condition which resulted in the death of the insured To sustain her burden of proof, the plaintiff was not required to adduce uncontradicted opinion evidence, but only such evidence as would seem reasonable to the common understanding consistent with itself and its basic facts, and which, if accepted would exclude any other conclusion than that the alleged cause of the fatal disease was the actual proximate cause To say that the plaintiff did not sufficiently prove her cause would be to hold in effect, that no liability based on the stipulation quoted could be proved if the experts of the respective parties disagreed The court did not err in sending the case to the jury

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Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Obstetrics and Diseases of Women and Children, York, Pa

February LXXV No 2

1 Complement Fixation in Abortions of Women with Special Reference to B Abortus (Bang) and B Abortivo Equinus P J Williams and J A Kolmer Philadelphia—p 193
2 *Traumatic Separation of Symphysis Pubis R M Beach Brooklyn—p 203
3 Treatment of Contracted Pelves Pubiotomy Report of Cases A J Rongy New York—p 208
4 Method of Determining Dilatation of External Os During Labor by Means of External Examination W E Welz Detroit—p 221
5 *Rectal vs Vaginal Examination in Labor S L Moore Minneapolis—p 225
6 Complete Rupture of Uterus at Full Term without Hemorrhage or Shock Recovery of Both Mother and Child I E Neill Washington *D C—p 235*
7 Interstitial Pregnancy Report of Case I S Stone Washington D C—p 239
8 Malignant Leiomyomas of Uterus I Warner Columbus—p 241
9 *Case of Hemangioendothelioblastoma in Pregnancy S Graves and J W Price Jr Louisville Ky—p 250
10 Diverticulitis of Descending and Pelvic Colon J W Keefe Providence, R I—p 252
11 Technic of Abdominal Hysterectomy J F Baldwin Columbus—p 263
12 *Inguinal Hernia Attached to Cord Undescended Testicle Uterus Tubes and Broad Ligaments E D Clark Indianapolis—p 273
13 Absence of Muscular Tone an Important Etiologic Factor in Postoperative Ileus R R Huggins Pittsburgh—p 278
14 Chronic Intestinal Stasis Case Reports W S Bainbridge New York—p 284

2 **Traumatic Separation of Symphysis Pubis**—The obstetric history of Beach's patient was interesting The first labor was dry and instrumental and was followed by three normal deliveries The fifth was dry and instrumental causing a third degree laceration, which was repaired three months later The sixth and seventh labors were normal but the eighth was a forty eight hour labor which was terminated by forceps Following this delivery the patient was in bed for sixteen days, suffered extreme sacral pain on motion and was unable to walk for three months after the delivery This labor was two and one-half years before the ninth or present one After the patient eventually became able to walk, she remained in fair health except for some backache after a hard day's work, or on rotary motion of the thighs During the last pregnancy, before coming to the hospital, she had no unusual symptoms and considered herself normal Admission examination showed a 40 cm fundus with a normal left occipito-anterior position, head at the brim Vaginal examination showed that the ends of the pubic bones were so widely separated that four fingers could be placed in the interval Labor progressed normally terminating at the end of thirteen hours in the spontaneous birth of a 9¼ pound baby Following the delivery the ends of the pubic bones came together to within about 3 cm of each other The puerperium was absolutely uneventful She was up on the thirteenth day, was soon walking without the least discomfort, and went home on the eighteenth day

5 **Rectal vs Vaginal Examination in Labor**—Rectal examination *alone*, or *when combined* merely with abdominal palpation in pregnancy and labor, as a substitute for vaginal examination in parturition, in Moore's opinion, is not compatible with an intelligent management of childbirth But the rectal route with abdominal palpation in pregnancy and parturition and the vaginal examination in pregnancy, subject to the rule, "When in doubt resort to the vaginal route," can be used in the majority of labors without necessitating any vaginal examination during labor Keep out of the vagina in labor except when necessary to do otherwise The author recommends primary vaginal examination in all cases first seen in labor and in all cases of delayed labor, and of course in cases in which operative interferences has been indicated, and to use the rectal route as an adjunct to a primary vaginal examination thus avoiding numerous vaginal examinations, which should always be condemned The vaginal examination should be made before rupture of the membranes the cervix being dilated, as diagnosed per rectum, and get the benefit of the autogenetic douche of liquor amnii Rectal examination and abdominal palpation in pregnancy and labor should be more thoroughly taught in medical schools

9 **Hemangioendothelioblastoma in Pregnancy**—This is a report of a tumor of the upper jaw which repeatedly grew larger during gestation became smaller after parturition and recurred after removal

12 Abstracted in The Journal, Oct 28 1916, p 1325

American Journal of Physiology, Baltimore

January XLII No 2

15 *Studies in Experimental Glycosuria Retention of Dextrose by Liver and Muscles and Influence of Acids and Alkalies on Dextrose Concentration of Blood J J R Macleod and M E Fulk Cleveland—p 193
16 Response of Vasomotor Mechanism to Different Rates of Stimuli C M Gruber, Philadelphia—p 214
17 Effect of Temperature Changes on Rhythm in Human Electromyogram A Forbes and W C Rappleye Boston—p 228
18 *Bile Pigment Metabolism Bile Pigment Output and Blood Feeding G H Whipple and C W Hooper San Francisco—p 256
19 *Id Influence of Fresh Bile Feeding on Whole Bile and Bile Pigment Secretion C W Hooper and G H Whipple, San Francisco—p 264
20 *Id Influence of Bile Constituents on Bile Pigment Secretion, Taurocholic, Glycocholic and Cholic Acids and Bile Fat C W Hooper San Francisco—p 280
21 Effects of Partial and Complete Occlusion of Blood Vessels on General Blood Pressure in Man B L Elliott Washington, D C—p 290
22 Effect of Rotation and of Unilateral Removal of Otic Labyrinth on Equilibrium and Ocular Reactions in Kittens A L Prince, Boston—p 308
23 Studies on Bioluminescence Chemistry of Light Production in Japanese Ostracod Crustacean, Cypridina Hilgendorfii Muller E N Harvey, Washington, D C—p 318
24 Id Chemistry of Light Production by Fire Fly E N Harvey, Washington D C—p 342
25 Id Light Production by Japanese Pennatulid Cavernularia Haberi *E N Harvey Washington, D C—p 349*

15 **Dextrose Retention**—When dextrose is injected by way of the portal vein into anesthetized dogs in amounts which are below the tolerance limit (about 0 8 gm per kilogram an hour), there occurs a rapid increase in the percentage of blood sugar This rise continues until a certain level is attained, after which the blood sugar remains practically constant The time at which the constant level is attained varies with the rate of injection When the behavior of the sugar concentration is compared in blood drawn from the portal vein vena cava and iliac veins during moderate dextrose injections, it has usually been found that there is very little difference During the injection of large amounts of dextrose the H-ion concentration of the blood, as determined by the colorimetric method, very commonly becomes increased When alkali (sodium carbonate) is injected intravenously in sufficient amount to lower the H-ion concentration of the blood in animals in which the blood sugar per-

centage is initially high (etherization and operative manipulation in sugar fed dogs), there is a very distinct decrease in blood sugar, but by comparison of the curves which represent this in the portal vein, vena cava and iliac vein, it cannot be shown whether the liver or the muscles are primarily responsible for the increased retention

The injection of sodium carbonate solution or of hydrochloric acid at intervals into the portal vein during the continuous injection into another branch of the same vein of a dextrose solution does not disturb the relationship in sugar concentration normally existing in blood taken from portal vein, vena cava and iliac vein, nor do such injections cause any alteration in the level of the curves, whether these be rising or stationary When dextrose is injected at a rate below the tolerance limit, along with sufficient alkali to cause a distinct increase in p_H of the blood of the portal vein and vena cava, the blood sugar does not rise to such a degree as it does when the dextrose solution is neutral or acid in reaction

18 **Bile Pigment Output and Blood Feeding**—The flow of bile and the secretion of bile pigments in the dog are not influenced by the ingestion of fresh blood, freshly laked red cells, cooked or digested blood

19 **Effect of Feeding Bile on Bile Secretion**—Feeding fresh bile to bile fistula dogs causes an almost constant cholagogue action, with a fall in the output of bile pigments These experiments exclude the possibility of bile pigment absorption from the intestine

20 **Effect of Feeding Bile Constituents**—Taurocholic acid given by the mouth has a strong cholagogue action, but little influence on the secretion of bile pigments in bile fistula dogs Glycocholic acid has a moderate cholagogue action but a strong inhibiting effect on bile pigment secretion Cholic acid has little if any cholagogue action, but may decrease somewhat the bile pigment secretion in the bile fistula dog Bile fat (ether extract) has no cholagogue action, but has a strong inhibiting effect on the secretion of bile pigments

Annals of Surgery, Philadelphia

January LXV No 1

26 Fractures of Lower Extremity or Base of Radius L S Pilcher Brooklyn—p 1
27 *Volkman s Ischemic Myositis and Contracture A S Taylor New York—p 28
28 Gunshot Injuries of Peripheral Nerves and Their Treatment Report of Cases H Fischer New York—p 56
29 *Carcinoma of Breast J C Oliver Cincinnati—p 66
30 *Autogenous Fascial Reconstruction of Bile Duct Report of Case N Ginsburg and J Speese Philadelphia—p 79
31 Splenectomy for Repeated Gastro Intestinal Hemorrhages D C Balfour Rochester Minn—p 89
32 Enterostomy for Ileus Report of Cases C N Dowd, New York—p 95
33 *Temporary Colostomy H A Shaw and J Hunt Seattle—p 105
34 Case of Fibroma of Small Intestine Resulting in Intussusception J E James Jr, and S W Sappington Philadelphia—p 109
35 Case of Gunshot Wound of Carotid Artery E G Alexander Philadelphia—p 115
36 Case of Stab Wound into Right Auricle of Heart C F Nassau Philadelphia—p 119
37 Case of Stab Wound into Left Ventricle of Heart J F Jones Philadelphia—p 120
38 Cases of Infectious Arthritis W J Merrill Philadelphia—p 122
39 Acidosis in Surgical Conditions J H Austin Philadelphia—p 126

27 **Ischemic Myositis**—The value of the elastic traction method of overcoming the cicatricial contracture in these cases is endorsed by Taylor A brace is made on a plaster-of Paris model of the forearm so as to fit smoothly It is applied without lacing it so tightly as to interfere with the circulation Elastic finger traction is applied up to the point of moderate discomfort The apparatus is left on continuously except for two intervals of an hour each, morning and afternoon During these periods the whole extremity is immersed in hot water for twenty minutes, kept as hot as bearable by constant addition of hot water If nerve involvement is present the heat must be less and the attendant s hand should be used as a guide After the immersion, massage and vigorous passive motion is used and finally, attempts at voluntary motion encouraged When the contractured tissues have been well stretched, so as to permit a good degree of passive extension of fingers and wrist simultaneously, the apparatus is left off during the day so as to encourage active motion and use, and then worn during sleep to avoid recurrence of the contracture As the tendency to recurrence disappears the apparatus is used less and less until it is finally discarded The child is systematically trained to use and develop all the muscles which have survived

29 **Carcinoma of Breast**—An analysis of 100 consecutive cases of carcinoma of the breast was made by Oliver Four patients were under 3 years of age and 14 were under 40, 17 patients were over 60, 67 patients were between 40 and 60 years of age In 56 patients the disease was in the right breast, in 43 in the left breast The actual number of cases which have survived the three-year period, is 41 The known dead are 65, and in 4 the result is unobtainable Of those living, 1 is alive twenty-one years after operation, 3, fourteen years, 3, fifteen years, 1, thirteen years, 1, twelve years, 1 ten years, 3, eight years, 5, seven years, 3, six years, 3, five years, 3, four and a half years, 3, four years, 5, three and a half years, 1, three and a quarter years, 2, three years Twenty-two of the successful patients knew of the existence of the disease for nine months, or less, previous to operation, while 12 gave a history extending over from one to twelve years The recurrences after operation exhibit a wide range In 14 cases the metastases were internal, 7 had secondary deposits in the spine, 2 in the mediastinum, 1 in the brain, 1 in the skull, 1 in the lower jaw and one in the sternum and supraclavicular fossa Nine cases had purely local recurrences, and 8 had local and internal recurrences The other breast was secondarily involved in one patient Oliver recommends systematic postoperative Roentgen-ray treatment

30 **Reconstruction of Bile Duct**—In the case cited by Ginsburg and Speese during the performance of a cholecystectomy the common duct to which the cystic duct was parallel, was caught in the forceps applied to the cystic duct, and both structures were divided Satisfactory healing of the incision took place, except for the establishment of a biliary fistula The patient made a good operative recovery At a second operation it was found that division of this structure had taken place half a centimeter below the junction of the right and left hepatic ducts, with some loss in continuity of the duct wall Since apposition of the two ends of the bile duct was impossible, a T-shaped rubber tube was inserted into the proximal and distal ends of the bile duct and fixed by catgut sutures About 2 inches of the duct needed reconstruction and this was accomplished by enveloping the rubber tube with a section of posterior rectus sheath fascia, including the peritoneum, taken from the region of the wound The fascial surface of the transplant was placed in contact with the rubber tube, and both ends were carefully sutured to and around the proximal and distal ends of the bile duct, and also to the wall of the duodenum After a week the distal end of the T-tube broke away at the junction of the fascial transplant with the distal end of the common duct, and was impinging on the wall of the duodenum, as was determined at a third operation A small thick-walled rubber tube, slightly less in diameter than that of the common duct itself was substituted for the T-tube, and the bile duct reconstructed around this tube, carefully suturing the transplant to the distal portion of the bile duct as well as to the wall of the duodenum Four months since the successful reconstruction of the duct was accomplished, the rubber tube has not been passed, and the patient has not suffered from any symptoms suggestive of biliary colic

33 **Temporary Colostomy**—The technic devised by Shaw and Hunt is as follows Incision exploration etc, are just the same as in any type Choice of dealing with the gut, that is single barrelled, double barrelled or simple attachment of the gut to the peritoneum, is simply a matter of judgment, after such decision, grasp the gut with a crushing clamp Within the bite of the crushing forceps is interposed a piece of dentist's rubber dam, the same width as the proposed stoma and about 4 inches long The parietal peritoneum is carefully circumstitched around the gut Next apply another crushing forceps parallel and distal to the first then cut

between, cauterize with phenol and apply a Kerr basting stitch, the ends of which are brought out through the abdominal wall and tied over gauze This stitch is to be removed when necessity calls for a patent stoma At the end of thirty-six hours union between the parietal and visceral peritoneum is complete and the basting stitch may be cut close to the skin on one end and pulled out at the other The rubber acts as a guide to the stoma, which sometimes remains sealed after the stitch is removed, due to the crushing of the forceps, the introduction of the gloved finger easily overcomes this The subsequent treatment would be that following any type of colostomy, depending on the individual case

Archives of Ophthalmology, New Rochelle, N Y

January XLVI No 1

40 Present Status of Sclerocorneal Trephine Operation for Relief of Glaucoma W R Parker, Detroit —p 1
41 Ocular Anaphylaxis Anaphylactic Theory of Sympathetic Ophthalmia A C Woods Philadelphia —p 8
42 Present Status of Operation for Extraction of Cataract in the Capsule A Knapp, New York —p 27
43 Three Cases of Unusual Vitreous Opacities H H Stark El Paso, Texas —p 38
44 Traumatic Transplantation of Cilia into Anterior Chamber H I Begle, Detroit —p 47
45 Is After Cataract More Frequent After Operations for Immature Cataract? T Heyl Munich —p 53
46 Keratectomy C Forom Genoa —p 57

Arkansas Medical Society Journal, Little Rock

January XIII No 8

47 Plastic Surgery of Nose and Eyelids, Report of Cases L H Lanier, Texarkana —p 155
48 Apparatus for Transfusion of Blood by Sodium Citrate Method N Mumey Little Rock —p 158
49 Nephrolithiasis J P Runyan Little Rock —p 161
50 Eclampsia J W Melton Slocum —p 163

Boston Medical and Surgical Journal

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51 Group of Injuries in Modern Warfare J W Churchman, New Haven, Conn —p 113
52 Jejunal Ulcer Two Cases Treated by Resection and End To End Anastomosis of Jejunum E P Richardson, Boston —p 118
53 Vaginal Delivery After Cesarean Section Report of Cases N R Mason, Boston —p 127
54 Reasons for Reentry of Hospital Patients E B Young Boston —p 133

Canadian Medical Association Journal, Toronto

January VII No 1

55 *Pyloric Stenosis in Infants W E Gallie and L B Robertson Toronto —p 1
56 Tuberculosis Often of Secondary Importance to Other Pathologic Conditions C D Parfitt Gravenhurst —p 10
57 Blood Transfusion C K P Henry Montreal —p 18
58 Treatment and Management of Congenital Syphilis G E Smith Toronto —p 27
59 Modern Treatment of Syphilis L W Harrison —p 31
60 Antituberculosis Work in Small City I C Neal Peterborough —p 44
61 Fallacies in Localization of Foreign Bodies by Roentgen Ray W H Eagar Halifax, N S —p 51

55 **Pyloric Stenosis in Infants** —During the past two years sixteen cases of undoubted pyloric stenosis have been treated surgically in the hospital for sick children in Toronto Of these sixteen cases, eleven recovered, a mortality of 31 2 per cent Of the five infants who died, one died of hemorrhage, one died sixty hours after operation with no relief of the symptoms because of incomplete operation, a third patient who died three days after operation was a very desperate case on admission, there having been absolute constipation for five days and vomiting of all the food This patient ceased vomiting after the operation but had evidently passed the possibility of recovery before operation, the fourth case was a prostrated, premature baby which had practically no chance from the beginning It died about twelve hours after operation Necropsy showed hypostatic congestion of the lungs, nephritis and colitis The fifth died three days after operation, in spite of the relief of vomiting, of general weakness Of the eleven patients who recovered, two died subsequently, of other conditions The first died six weeks after the operation of acute enterocolitis All the symptoms of pyloric stenosis were relieved by the operation and the case was a favorable one for complete recovery until the intestinal infection developed The second patient died of pneumonia and empyema about a year after the operation The relief of the pyloric obstruction had been complete and recovery perfect At 14 months of age he appeared to be a normal baby At necropsy the pyloric enlargement was found to persist although the ratio of its size to that of the neighboring intestine was slightly smaller The remaining nine patients are alive and well, apparently suffering no ill effect from their pathologic condition or from the operation

Indiana State Medical Association Journal, Fort Wayne

January X No 1

62 Workmen's Compensation Law in Its Relation to Practice of Medicine H S Landers, Indianapolis —p 1
63 *Diagnosis in Certain Gastric Disorders H Miller, South Bend —p 10
64 *Necessity of Coordinating Methods in Definite Diagnosis of Pulmonary Tubercular Lesions F B Wynn, Indianapolis —p 15
65 *Roentgen Ray Diagnosis in Pulmonary Tuberculosis R C Beeler Indianapolis —p 18

63, 64 and 65 Abstracted in The Journal, Oct 28, 1916, p 1327

Journal of Bacteriology, Baltimore

January II No 1

66 Colorimetric Determination of Hydrogen Ion Concentration and Its Applications in Bacteriology W M Clark and H A Lubs Washington, D C —p 1 To be continued
67 Soil Flora Studies H J Conn, Geneva, N Y —p 35 To be continued
68 *Influence of Milk and Carbohydrate Feeding on Character of Intestinal Flora Diet vs Bacterial Implantation T G Hull and L I Rettger, New Haven, Conn —p 47
69 Coccidia in Subepithelial Infections of Intestines of Birds P B Hadley Providence, R I —p 73
70 Bacterial Disease of Wragg Cherry W G Sackett Fort Collins Colo —p 79

68 **Influence of Milk on Intestinal Flora** —The most important factor in determining the character of the intestinal flora according to Hull and Rettger is the diet Lactose, milk and mixed grains (wheat, oats, etc) are specific articles of diet which exert such an influence Lactose, when fed in sufficient quantities (2 to 3 gm daily), brings about a complete transformation of the flora of white rats within two to three days, milk requires a longer time, and does not bring about a complete change Milk and lactose together form the most practical and effective diet, at least for man Grain feeds tend to increase the number of aciduric bacteria, but their influence is comparatively small Milk undoubtedly owes its beneficial action to the lactose which constitutes almost half of the solid matter present The explanation of this action must lie in the fact that the lactose is absorbed slowly from the intestine On several occasions it was found by the authors in the feces of rats that had been supplied with it as a part of their diet The raw grains are also probably acted on slowly, or at least some of the intermediate carbohydrate products are not immediately absorbed Bread, on the other hand, which contains cooked starch does not foster the development of the aciduric bacteria, because it is digested quickly, and no available sugar remains in the intestine long enough to be attacked and utilized by this group of bacteria

Meat or other high protein diet increases the indol-producing bacteria and other organisms of the so called putrefactive" type, cornstarch appears to foster the amylolytic group of intestinal organisms, while in a few experiments grain feed seemed to favor the development of what appeared to be fusiform bacilli The reaction of the intestine remained independent of the character of the intestinal flora The acidity was highest in the duodenum, as a rule, and lowest at the ileocecal valve

Journal of Cutaneous Diseases, Boston

January XXXV No 1

71 *Rare Form of Scleroderma A Ravogli Cincinnati —p 1
72 Follicular Type of Eczema Seborrheicum W B Trimble, New York —p 11
73 Fissure of Lip Device for Its Treatment W A Pusey, Chicago —p 16
74 *Elephantiasis Nostras Report of Case J A Elliott, Ann Arbor, Mich —p 17
75 Case of Epidermolysis Bullosa Showing Loss of Elastic Tissue in Apparently Normal Skin R S Weiss, St Louis —p 26
76 Histopathology W J Heimann, New York —p 28

71 **Rare Form of Scleroderma**—The scleroderma in Ravogli's case, he says, was probably due to peripheral neuritis The system was affected by a form of diathesis, which had disturbed the equilibrium of the internal secretions, a sudden change of temperature due to exposure to wet and cold acted as a determining cause

74 **Elephantiasis Nostras**—A large majority of the cases of elephantiasis nostras, Elliott says, are due to the streptococcus of Fehleissen The primary changes are in the blood vessels rather than in the lymphatics The secondary changes are lymph stasis, edema, a marked hypertrophy of collagen with an infiltrate of small round cells and some polynuclear leukocytes Leprosy and acute scleroderma are to be considered in the differential diagnosis The streptococcic origin of the disease suggests that the local measures might well be augmented by antistreptococcic serum in the treatment of the disease

Journal of Laboratory and Clinical Medicine, St Louis

January II No 4

77 *Application of Typhoidin Test in Group of Nurses and Physicians F P Gay and A R Lamb, San Francisco—p 217
78 Cardiac Aneurysms Report of Cases P G Woolley Cincinnati —p *221*
79 *Occurrence of Immature Polynuclear Leukocytes in Circulating Blood in Pulmonary Tuberculosis and Other Infectious Diseases A M Burgess Providence R I—p 240
80 *Simple Method of Plotting Charts J R Williams, Rochester N Y—p *247*
81 Macrophages in Feces in Acute Dysentery K M Lynch Charleston S C—p 251
82 Pathologic Effects of Atmospheres Rich in Oxygen H T Karsner Cleveland and J E Ash U S Army—p 254
83 **Blood Pressure in Aged* L M Bowes, Chicago—p 256
84 Demonstration of Treponema Pallidum in Cerebral Cortex of Congenital Syphilitic Child C E Kiely Cincinnati—p 260
85 Machine for Shaking Blood Mixing Pipettes G G Little Rochester Minn—p 264
86 Modification of Noguchi Test N E Williamson, Stockton Calif—p *266*
87 Id N E Williamson, Stockton, Calif—p 268

77 **Application of Typhoidin Test.**—A survey of the percentage of positive results obtained by Gay and Lamb in a study of 154 individuals shows that 75 per cent of those individuals that had recovered from typhoid (twelve) gave a positive reaction The negative reactions bear no relation to *the date of the* antecedent disease, since two cases twenty-two years previously were both positive From 75 to 40 per cent of those that had been vaccinated against typhoid (121) also reacted positively and in general in decreasing correspondence with the lapse of time since immunization Of twenty-one presumably normal individuals, three, 14 28 per cent, gave a positive typhoidin reaction Whatever may be the eventual understanding of a positive typhoidin test, the authors point out that use of its absence as an indication for revaccination certainly errs on the side of safety in detecting those individuals who in spite of typhoid vaccination do not show indications of a reaction to the typhoid bacillus, and who are, therefore, presumptively those particular individuals who under ordinary conditions of infection will be found to be the least protected ones

79 **Immature Polynuclear Leukocytes**—The presence of a high percentage of immature polynuclear leukocytes in the circulating blood (Arneth's "shift to the left"), Burgess *states* is evidence of excessive loss of polynuclear leukocytes from the blood stream, and an attempt on the part of the bone marrow to make good the loss It does not indicate toxemia nor is it an index of the patient s resistance to infection Leukocytosis, on the other hand, is evidence of toxemia and of direct stimulation of the bone *marrow* by certain toxins A moderate leukocytosis may exist without causing an appreciable change in the Arneth picture In *pulmonary tuberculosis* the demand for leukocytes indicated by a "shift to the left means necrosis and *extension of* the lesion In early stages of the disease this may be *of considerable* value in immediate prognosis and *even at times, in* diagnosis In advanced disease which is slowly progressing, as the demand for leukocytes apparently varies from time to time, the count appears to be useless in estimating the prognosis *In rapidly* progressing tuberculosis the unmistakable clinical evidence of activity renders the study of the blood picture superfluous In nontuberculous disease the evidence of excessive mobilization of leukocytes may be of value in doubtful cases to determine the presence of large collections of pus

80 **Simple Method of Plotting Charts**—The salient features of the method described by Williams are The printing on standard sheets of cross section paper all the fixed words and characters which will be common to all charts This usually can best be done by having them first drafted, and zinc etchings and plates or electros made therefrom The printing on gummed paper of all the common words and characters which the plotting of a given set of data will require These to be of the proper size and spacing to fit in the chart so as to give uniformity The printing of several types of cross hatching on gummed stock so that it may be similarly used The use of a photographic trimming board to smoothly and correctly cut the words characters and hatching used and the attachment thereto of a scale to facilitate calculations and to *minimize* errors

83 **Blood Pressure in Aged**—There were 100 women and fifty men examined by Bowes in this series The systolic and pulse pressures increased to the age of 85 and then decreased The diastolic pressure did not vary much after the age of *70* The blood pressure was higher in women except after the age of 90 There were a few who had very high blood pressures without symptoms They were going about their everyday duties in apparently perfect health There were some who simply complained of morning headache, slight vertigo, numbness or tingling of the hands and feet A third group presented the more severe symptoms of nephritis, aortic regurgitation, cerebral hemorrhage and arteriosclerosis There were twenty-two who had systolic pressures of 200 mm of mercury or over Thirteen had arteriosclerosis alone, three had cardiac lesions, two had nephritis, two had cerebral hemorrhage and cardiac lesions one cerebral hemorrhage and one nephritis and a cardiac lesion The highest systolic pressure was 270 mm of mercury This was a case of nephritis There were twenty-eight who gave diastolic pressures of 100 or over Sixteen had arteriosclerosis alone Seven had cardiac lesions, two had cerebral hemorrhage and a cardiac lesion, two cardiac *lesions* and nephritis and one had cerebral hemorrhage There were thirty who had pulse pressures of 100 or over The *highest* pulse pressure was 150, observed in a case of aortic regurgitation Sixteen had cardiac lesions, seven arteriosclerosis alone three cerebral hemorrhage, three nephritis and one had nephritis and a cardiac lesion All cases *of nephritis had* very high blood pressures The systolic, diastolic and pulse pressures were high in all cases of cerebral *hemorrhages* A low pulse pressure was associated with myocarditis or a *failing* heart, and a sustained pulse pressure of 100 or over usually resulted in myocarditis or a failing heart In most cases of bronchitis there was a failing heart with lowering blood pressure Obesity did not seem to influence *the blood* pressure

Medical Record, New York

January 27 XCI No 4

88 Paratyphoid as Observed During Epidemic in 14th N Y Infantry While on U S Service *at Mexican Border* 1916 C W Berry Brooklyn—p 135
89 Study in Mental Retardation in Relation to Etiology B T Baldwin Swarthmore Pa—p 141
90 *Modified Method in Tuberculin Therapy W Meyer West Hoboken N J—p 147
91 Multiple Sclerosis Due to Repeated Inhalation *of* Carbon Monoxid in Furnace Gas Report of Two Cases W J McGurn, Boston —p 149
92 Reflex Cough A B Bennett Jr Washington D C—p 151
93 Scorbutus in Ten Months *Old Baby Treated by* Transfusions of Citrated Maternal Blood G A Rueck New York—p 152
94 Most Efficient Anaphrodisiac (Magnesium Sulphate) W J Robinson New York—p 153

90 **Modified Method in Tuberculin Therapy**—The method described by Meyer consists of the simultaneous *administration* of three *different* tuberculins, namely, Koch's old tuberculin (T O) Koch's *bacillary* emulsion (B E) and Denys' bouillon filtrate (B F)

concludes that unless one knows how serum has been stored the putting on the label of a time expiry limit tells nothing and may lead to a false sense of security Kept under similar conditions, tetanus antitoxin loses its strength at about the same rate as diphtheria antitoxin The loss which occurs on keeping is in the number of units only The quality of the antitoxin remains the same, but the quantity is less This decrease can easily be remedied by giving larger doses

11 **Death After Salvarsan**—Wadia's patient was given 0 5 gm of salvarsan intravenously He died thirteen days afterward After a severe illness the symptoms suggesting acute yellow atrophy or phosphorus poisoning, but both were negatived by the fact of there being enlargement of the liver throughout, and also as to the former by the absence of leucin and tyrosin in the urine Wadia suggests that there must have been a storage of arsenic in the liver giving rise in all probability to acute fatty degenerative changes in the cells

Edinburgh Medical Journal

January XVIII No 1

12 Causation of Naegele and Robert Pelves D B Hart—p 4
13 *Prognosis in Disseminated Sclerosis Duration in Two Hundred Cases of Disseminated Sclerosis B Bramwell—p 16
14 Dr Pascal Rougon Zola s Study of Savant J B Adams—p 23
15 Case of Sporotrichosis D M Greig—p 42
16 Case of Suture of Perforating Wound of Heart J Fraser—p 47
17 Simulation of Acute Appendicitis by Suppuration at Abdominal Inguinal Ring Following Gonococcal Affection of Ductus Deferens J W Dowden—p 49

13 **Prognosis in Disseminated Sclerosis**—In 200 cases analyzed by Bramwell the results up to the present date are as follows 106 of the 200 patients have died, 64 patients are known to be still alive, and in 30 cases the result is not known Of the 64 patients known to be still alive, 42 are much worse, 12 are in *statu quo* 7 are greatly improved and 3 quite well The average duration of the disease in 170 (fatal and nonfatal) cases is up to the present date twelve years and one month In 1 patient the duration of the disease was thirty-seven years, and in no less than 14 cases the disease has lasted for more than twenty-five years In the 106 cases in which the disease proved fatal the average duration was ten years and eight months the shortest duration was seven months, and the longest duration was thirty-seven years In 23 or 21 6 per cent, of the 106 fatal cases the disease terminated in less than five years, in 54, or 50 9 per cent of the 106 fatal cases in less than ten years, in 78, or 73 5 per cent, of the 106 fatal cases, in less than fifteen years, and in 92, or 86 7 per cent of the fatal cases in less than twenty years Bramwell cites the histories of two patients in whom a permanent cure seems to have taken place and of 2 patients in whom the disease lasted respectively, for thirty-seven and thirty-four years

Indian Medical Gazette, Calcutta

December 1916 LI No 12

18 Surgery at Siege of Kut C H Barber—p 441
19 Sandfly Fever and Dengue W L Harnett—p 444
20 General Paralysis of Insane in Federated Malay States W F Samuels—p 453
21 Present Day Glaucoma Operations B P Banaji—p 455
22 Intravenous Injection of Eusol C Barry—p 457
23 Case of Pellagra at Alipore Jail J Roy—p 458
24 Case of Kala Azar Treated by Intravenous Injections of Tartar Emetic T Jackson—p 459
25 Serum for Diagnostic Purposes D J Asana—p 459
26 Blackwater Fever J N Dutt—p 460

Medical Journal of Australia, Sydney

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27 Cerebrospinal Fever in Military Camps and Country Hospitals of New South Wales W S Brown—p 487
28 Treatment of Thirty Five Cases of Cerebrospinal Meningitis R E Nowland—p 489
29 Administrative and Epidemiologic Aspects of Cerebrospinal Fever W G Armstrong—p 492
30 Etiology and Epidemiology of Cerebro pinal Fever J B Cleland—p 496 To be continued

December 16 1916 No 25

31 Id J B Cleland—p 516

Lancet, London

January 6 I No 4871

32 Conditions which Govern Growth of Bacillus of "Gas Gangrene" in Artificial Culture Media A F Wright—p 1
33 Orthopedic Methods in Military Surgery D M Aitken—p 10
34 *Six Cases of Ameba Histolytica Carriers Treated with Emetin Bismuthous Iodid C G Imrie and W Roche—p 17
35 Surface Tension and Wassermann Reaction V B Nesfield—p 18
36 Traumatic Hernia of Diaphragm Proving Fatal Seven Months After Wound C P Symonds—p 18
37 Blood Changes in Gas Poisoning J Miller and H Rainy—p 19

34 **Ameba Histolytica Carriers**—Emetin bismuthous iodid was administered by Imrie and Roche in doses of 3 grains on twelve successive nights to six patients When given immediately after a light supper its administration was always followed with nausea and in some cases vomiting These undesirable symptoms were least in evidence when the patients received the drug with water at 10 p m Five of the patients ceased to pass *Entameba histolytica* in the active or encysted form forty-eight hours after the institution of treatment The sixth patient continued to pass cysts for six days, after which the microscopic findings were negative These observations have a greater significance when it is remembered that four of the patients had previously received a course of emetin hydrochlorid despite which they continued to pass the entameba in its active or encysted stage

Bulletin de l'Academie de Médecine, Paris

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42 *Infant Welfare Work in Paris (De la protection de l enfance pendant la deuxieme annee de guerre dans le camp retranche de Paris) A Pinard—p 540

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46 Gas Gangrene Statistical Study G Gross—p 586
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38 **Chloridimeter**—An instrument for bedside use is described with which the chlorid content of the urine or other fluid can be easily estimated with the usual chemical tests The chloridimeter is a glass tube graduated in two divisions The tube is filled to the lower mark U with the urine and then to the mark R with the reagent They are mixed by reversing the stoppered tube a few times The tube is graduated from 1 to 20 above the mark R The second reagent (29 075 gm silver nitrate and distilled water Q S for 1,000 gm) is added a little at a time It tints the fluid red but this disappears as the contents are mixed By adding more and more the red tint becomes more pronounced and more durable The figure marked at the point reached by the fluid when the tint has become stable is the index of the chlorid content in grams per liter of the fluid being analyzed The first reagent is a mixture of 2 gm potassium bichromate, 3 gm acetic acid 10 gm sodium acetate, and distilled water Q S for 1 000 gm The same tube is graduated, besides, like the Esbach tube and is used in the same way to determine the albumin content (See abstract 43 below)

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42 **Welfare Work for Young Children, and Infantile Mortality in Paris District**—Pinard reviews the work that has been done to promote infant welfare during the second year of the war devoting over forty pages to the various me enforced and the statistics of the last three years

Pennsylvania Medical Journal, Athens

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96 *Hospital Organization in Rural Pennsylvania H L Foss Danville—p 247
97 *Clinical Interpretation of Wassermann Test J A Lichty, Pittsburgh and J H Whitcraft Wilksburg—p 252
98 *Modern Diagnosis and Results Clinically, Serologically and Sociologically of Syphilis B A Thomas Philadelphia—p 254
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96 Abstracted in The Journal Nov 4 1916, p 1395

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Southern Medical Journal, Birmingham, Ala

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104 **Cui Bono Physician and His Ideals M L Graves, Galveston,* Texas—p 1
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106 Utilization of Dispensary in Medical Teaching W S Elkin Atlanta, Ga—p 12
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108 Syphilis and Baby L R DeBuys New Orleans—p 29
109 Infectiousness of Tuberculosis T D Coleman Augusta, Ga—p 33
110 Uniform Laws for Southern States O Dowling Shreveport La—p 40
111 Statistical Study of Intestinal Helminthiasis D G Willets Washington—p 42
112 *School Inspection by County Health Officer and How to Secure* Correction of Defects D E Sevier, Asheville, N C—p 49
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116 More Radical vs Conservative Operation on Pelvic Organs C N Cowden Nashville Tenn—p 63
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124 Surgery of Gall Passages C N Cowden, Nashville—p 368
125 Rectal Feeding G M Niles Atlanta Ga—p 374

Texas State Journal of Medicine, Fort Worth

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126 *What Has Become of High Blood Pressure Cases R W Baird, Dallas—p 349
127 Fumigation of Ships R L Wilson, Galveston—p 351
128 *Rewards of Obscure Physician M M Carrick Dallas*—p 353
129 Defects of Sight and Hearing that Retard Mental Development *E H Cary Dallas*—p 356
130 Is Diagnosis and Conservative Treatment of Fractures About to Become A Lost Art? B Saunders, Fort Worth—p 358
131 Physician's Duties and His Relation to Community J B McKnight Carlsbad—p 361
132 Publicity in Public Health Work W F Thomson, Beaumont—p 363

126 **What has Become of High Blood Pressure Cases**—The record of 125 patients with systolic blood pressure 160 mm and over is analyzed by Baird Fourteen patients with nephritis, 33 with cardiovascular disease and 28 with cardiac disease are living Fifty are dead The causes of death were nephritis, 15, cardiovascular disease, 3, cardiac disease, 18, apoplexy, 8, and undetermined 6 Of those dead, 36 per cent died during less than one year of observation, and in the next two years 22 per cent of them died, and all but a very small per cent die within five years Patients dying from cardiac dilatation showed a maximum blood pressure of 260 with an average of 190 In the Bright's cases the average was 215, systolic

United States Naval Medical Bulletin, Washington, D C

January XI, No 1

133 *Prevention of Venereal Diseases at Naval Training Station, Norfolk, Va* C E Riggs—p 1
134 Complement Fixation Reaction on Board Ship W W Cress—p 15
135 Syphilis Record G F Cottle—p 21
136 Marines Wounded During Drive on Santiago, Santo Domingo H F Strine—p 29
137 Strychnin Stovain Spinal Anesthesia E P Huff—p 34
138 Diseases Incident to Submarine Duty R W McDowell—p 44
139 Uncinariasis in Cuba R Spear—p 50
140 Ear Disease in Service G B Trible—p 53
141 Treatment of Gastric Ulcer W A Brams—p 58
142 Slop Chute and Garbage Bin for Battleships W H Bell—p 67
143 Preliminary Report on Pathology of Narcotic Addiction C F Stokes—p 64

Wisconsin Medical Journal, Milwaukee

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144 Recent Advances in Study of Heart Disease and Their Significance to General Practitioner of Medicine F W Peabody Boston—p 255

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British Medical Journal, London

January 6 I, No 2923

1 Early Diagnosis and Treatment of Syphilis J H Sequeira—p 1
2 Diseases of Male Urethra I S Kidd—p 3
3 *Disappearance of Malignant Tertian Crescents from Blood Following Intravenous Injection of Tartar Emetic L Rogers*—p 6
4 Roentgen Ray Diagnosis of Gas in Tissues J D Morgan and G Vilvandre—p 8
5 Detection of Gas in Tissues by Roentgen Rays H Black—p 9
6 *Keeping Qualities of Therapeutic Serums A T MacConkey—p 10
7 Chemical Factors Involved in Growth of Meningococcus D J Lloyd—p 11
8 Morphin Hyoscin Method of Painless Childbirth A F Martin—p 12
9 Monomorphic Trypanosome Found in Blood of Native of Gold Coast J W S Macfie—p 12
10 Significance of Lymphatic Glands Situated on Anterior Surface of Atlas A E Maylard—p 13
11 *Death After Salvarsan M D Wadia—p 13

3 **Treatment of Malaria by Tartar Emetic**—An apyrexial case of malaria showing numerous crescents in the blood treated with tartar emetic intravenously is cited by Rogers On the fourth day 4 cg of tartar emetic were given intravenously, 8 cg on the fifth and eighth days, respectively, and 12 cg on the eleventh day A case is cited of acute malignant tertian infection yielding to quinin, with subsequent appearance of numerous crescents, which disappeared after two intravenous injections of 8 cg tartar emetic, one on the second and one on the ninth day Rogers is of the opinion that quinin should be used to check the malarial paroxysms, while tartar emetic should subsequently be given intravenously, in the hope that it may prove of value in destroying the extracorpuscular stages of the malarial parasites, and so prevent relapses, and greatly lessen the infectiveness of the patient to malaria-bearing mosquitoes, by killing the crescent of the malignant tertian variety and the corresponding resisting forms of the other types of malaria Two additional cases are cited

6 **Keeping Qualities of Therapeutic Serums**—The question of the loss of antitoxin which occurred in samples of diphtheria antitoxin which had been in commerce for various periods was investigated by MacConkey The average period during which these serums were on the market was about two and a half years, and the average loss in unitage during that period was about 23 per cent, or about 10 per cent per annum Nothing is known about the conditions under which these serums were stored while in commerce, but it is obvious that the rates of deterioration varied greatly MacConkey

concludes that unless one knows how serum has been stored the putting on the label of a time expiry limit tells nothing and may lead to a false sense of security Kept under similar conditions, tetanus antitoxin loses its strength at about the same rate as diphtheria antitoxin The loss which occurs on keeping is in the number of units only The quality of the antitoxin remains the same, but the quantity is less This decrease can easily be remedied by giving larger doses

11 **Death After Salvarsan**—Wadia's patient was given 0 5 gm of salvarsan intravenously He died thirteen days afterward After a severe illness the symptoms suggesting acute yellow atrophy or phosphorus poisoning but both were negatived by the fact of there being enlargement of the liver throughout and also, as to the former, by the absence of leucin and tyrosin in the urine Wadia suggests that there must have been a storage of arsenic in the liver, giving rise in all probability to acute fatty degenerative changes in the cells

Edinburgh Medical Journal

January XVIII No 1

12 Causation of Naegele and Robert Pelves D B Hart—p 4
13 *Prognosis in Disseminated Sclerosis Duration in Two Hundred Cases of Disseminated Sclerosis B Bramwell—p 16
14 Dr Pascal Rougon Zola s Study of Savant J B Adams—p 23
15 Case of Sporotrichosis D M Greig—p 42
16 Case of Suture of Perforating Wound of Heart J Fraser—p 47
17 Simulation of Acute Appendicitis by Suppuration at Abdominal Inguinal Ring Following Gonococcal Affection of Ductus Deferens J W Dowden—p 49

13 **Prognosis in Disseminated Sclerosis**—In 200 cases analyzed by Bramwell the results up to the present date are as follows 106 of the 200 patients have died, 64 patients are known to be still alive, and in 30 cases the result is not known Of the 64 patients known to be still alive, 42 are much worse 12 are in *statu quo* 7 are greatly improved and 3 quite well The average duration of the disease in 170 (fatal and nonfatal) cases is up to the present date, twelve years and one month In 1 patient the duration of the disease was thirty-seven years and in no less than 14 cases the disease has lasted for more than twenty-five years In the 106 cases in which the disease proved fatal the average duration was ten years and eight months, the shortest duration was seven months, and the longest duration was thirty-seven years In 23 or 21 6 per cent, of the 106 fatal cases the disease terminated in less than five years, in 54, or 50 9 per cent of the 106 fatal cases in less than ten years, in 78, or 73.5 per cent of the 106 fatal cases, in less than fifteen years, and in 92 or 86 7 per cent, of the fatal cases in less than twenty years Bramwell cites the histories of two patients in whom a permanent cure seems to have taken place and of 2 patients in whom the disease lasted respectively for thirty-seven and thirty-four years

Indian Medical Gazette, Calcutta

December 1916 LI No 12

18 Surgery at Siege of Kut C H Barber—p 441
19 Sandfly Fever and Dengue W L Harnett—p 444
20 General Paralysis of Insane in Federated Malay States W F Samuels—p 453
21 Present Day Glaucoma Operations B P Banaji—p 455
22 Intravenous Injection of Eusol C Barry—p 457
23 Case of Pellagra at Alipore Jail J Roy—p 458
24 Case of Kala Azar Treated by Intravenous Injections of Tartar Emetic T Jackson—p 459
25 Serum for Diagnostic Purposes D J Asana—p 459
26 Blackwater Fever J N Dutt—p 460

Medical Journal of Australia, Sydney

December 9 1916 II No 24

27 Cerebrospinal Fever in Military Camps and Country Hospitals of New South Wales W S Brown—p 487
28 Treatment of Thirty Five Cases of Cerebrospinal Meningitis R E Nowland—p 489
29 Administrative and Epidemiologic Aspects of Cerebrospinal Fever W G Armstrong—p 492
30 Etiology and Epidemiology of Cerebro pinal Fever J B Cleland—p 496 To be continued

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31 Id J B Cleland—p 516

Lancet, London

January 6 I No 4871

32 Conditions which Govern Growth of Bacillus of "Gas Gangrene' in Artificial Culture Media A E Wright—p 1
33 Orthopedic Methods in Military Surgery D M Aitken—p 10
34 *Six Cases of Ameba Histolytica Carriers Treated with Emetin Bismuthous Iodid C G Imrie and W Roche—p 17
35 Surface Tension and Wassermann Reaction V B Nesfield—p 18
36 Traumatic Hernia of Diaphragm Proving Fatal Seven Months After Wound C P Symonds—p 18
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Bulletin de l'Académie de Médecine, Paris

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show that 50 per cent more children were abandoned in 1916 than in 1914, while the number of births was 50 per cent less The high wages paid in the munitions factories he regards as responsible in large measure for this state of things, and he declares that the only remedy is to forbid factory work for every pregnant woman, every nursing mother, and every woman who has borne a child within six months The infant mortality under 1 year of age is lower than in previous years

43 **Chloridimeter**—Achard describes perhaps the simplest form of chloridimeter and emphasizes the advantages of bedside examination of the urine which he has been preaching, he declares, for fourteen years His chloridimeter is a test tube and he uses always 3 drops of the 20 per cent solution of potassium chromate and 5 c c of the standard solution of silver nitrate The urine is then added until the reddish brown tint veers to a clear yellow The tube is graduated to show the amount of urine required for this color reaction By thus modifying the usual technic, letting the urine be the variable quantity, the test is rendered much simpler and much more convenient, he says, without detracting from its reliability The urine can be diluted if exceptionally concentrated or the nitrate solution can be diluted if the reverse prevails, calculating to allow for this (See abstract 38 above)

44 **Venereal Disease After Two Years of War**—Gaucher and Bizard say that just before the war, in a series of 3 000 patients in their service, 10 per cent were syphilitic In the first sixteen months of the war this proportion had increased to 16⅔ per cent, and in the last eight months to 25 per cent of 2,300 patients This last series of 600 syphilitics includes 219 civilians, thirty-seven under 20 years of age, and fourteen between 50 and 59, with one each of 64 and 66 Among the soldiers those over 25 furnish the largest contingent Among 222 women with recent syphilis during the first eight months of 1916 more than two thirds were married, and in a large proportion of cases the first symptoms were noted soon after the husband's brief visit home A third of these women were over 30 years old, further testimony to the probability of infection having occurred under legitimate conditions

Gaucher emphasizes also the extraordinary prevalence of gonorrhea in both men and women and expatiates on the necessity for enlightening the public as to its dangers and last but not least, on the necessity for teaching physicians to diagnose and treat it properly He has been appalled at the ignorance of the dangers of venereal disease which has been revealed by inquiry among the young men examined A number of instances are cited showing further that syphilitic eruptions and other lesions in both men and women had long been given futile treatment on a mistaken basis, throat lesions, leg ulcers, alopecia which subsided at once under specific measures The negative statements of patients should never be heeded He insists that every physician should take a course of training in some service for syphilography, especially now that there is reason to fear that syphilis is going to be carried into the remotest villages He pleaded with the authorities a dozen years ago to have a course in skin diseases and syphilis included in the fourth year of the medical course All agreed with him as to its advisability, but nothing was done he remarks, "as it is the custom in France to take no steps to prevent evil and to wait until it is done before seeking to remedy it" He adds that the war alone is not responsible for this increase in syphilis, it has only precipitated it

Lyon Medical, Lyons

December 1916 CXXV No 12 pp 513 560

48 The Chemical Industry in France and in Germany P Garnal—p 513 Concluded

Paris Médical

December 30 1916, VI No 53 pp 561 576

49 Extraction of Projectiles (L extraction des projectiles sur le front) G Rechou—p 562
50 *Pneumococcus Infections in African Troops (La pneumococcie chez les tirailleurs de l Afrique occidentale Observations cliniques et therapeutiques) G Boye and G Clarac—p 568
51 Shiny White Lichen Planus (Lichen porcelaine) H Gougerot—p 571
52 Spontaneous Cure of Shell Vesicorectal Fistula with Retention Catheter and Wide Infrarectal Drain (Fistule vesico rectale par eclat d obus guerie par des moyens simples) A Bœckel—p 573

50 **Pneumococcus Infections and Abuse of Cola**—Boye noticed that the native troops from western Africa suffered exceptionally from extreme cardiovascular weakness during pneumonia He traced this to the lack of cola nut which they take habitually at home, often in excessive quantities The pneumococcus infections were mild, and as soon as he allowed the men a certain amount of cola nut they rapidly recuperated Chronic cola intoxication was thus demonstrated to be responsible for the cardiac instability, and by giving them this stimulant to which they were accustomed, they were tided past the danger point

Berliner klinische Wochenschrift

November 27 1916 LIII No 48 pp 1285 1308

53 *Ulcerative or Suppurating Colitis R Ehrmann—p 1285
54 *New Finger Made from Rib Engrafted in Abdominal Wall (Ein neues Operationsverfahren zum Ersatz von Fingerverlusten) H Neuhauser—p 1287
55 *Hyperleukocytosis with Internal Hemorrhage (Die Leukocyten reaktion nach inneren Blutungen) H Dold—p 1290
56 *Advantages of Repeated Lumbar Puncture in Treatment of Epidemic and Other Meningitis (Beitrage zur Pathologie und Therapie der Hirnhautentzundung, insbes der epidemischen Genickstarre) H Muhsam—p 1293
57 Recent Research on the Heart (Neuere Arbeiten uber Herzdiagnostik mit bes Berucksichtigung der praktisch verwendbaren Methoden) F Geppert—p 1298

53 **Ulcerative Colitis**—Ehrmann discovered some connection with dysentery in all but one of his cases of ulcerative colitis Either agglutination tests, the anamnesis or the necropsy findings gave conclusive evidence in this respect In several of the cases blood had long been passed in the stools at certain periods In some of the cases the infection had been mainly with the Flexner or Y bacillus, and yet the suppurating and ulcerating colitis was as grave as in the cases traceable to true dysentery

54 **Making a New Finger**—Neuhauser extols the advantages of a method with which a strip of a rib is transplanted into a fold of abdominal skin, and this in turn is sutured to the stump of the lost finger The hand can thus be fastened to the abdomen with the minimum of discomfort, while the results when the new finger was cut away from the abdominal wall were satisfactory in the case described, with illustrations

55 **Leukocytosis with Internal Hemorrhage**—Dold has confirmed on dogs and rabbits the rise in the numbers of leukocytes when internal hemorrhage has occurred This leukocytosis is manifest even with relatively slight internal hemorrhage It reaches its height in from eight to twenty-four hours, and has entirely subsided by the end of the fourth day He explains this leukocytosis as due to absorption of leukocyte-attracting products from the disintegration of albumin in the extravasated blood He thinks that it is destined to be quite an aid in diagnosis of internal hemorrhage

56 **Treatment of Meningitis**—Muhsam states that the mortality was 56 per cent in his numerous cases of epidemic meningitis in which intraspinal serotherapy was applied by the usual technic On the other hand it was only 5 per cent in the numerous cases in which daily lumbar puncture was done, withdrawing large amounts of fluid, up to 100 c c at a time He never witnessed any serious mishaps from it Mixed infection was quite common He adds that he is not allowed to give his figures, but that the numbers are large enough to warrant decided statements as to the value of thus evacuating the noxious fluid in these cases

Deutsche medizinische Wochenschrift, Berlin

December 7 1916 XLII No 49 pp 1501 1532

58 *The Coordinated Reflexes of the Human Lumbar Spinal Cord Bohme—p 1501
59 Monocyte Leukemia? Bingel—p 1503 To be continued
60 Acute Nephritis in the Troops Rostoski and Pantaenius—p 1505 To be continued
61 The Blood Picture after Radiotherapy of Uterine Cancer (Die Bewertung des Blutbildes nach Bestrahlung beim Uteruskarzinom) F Heimann—p 1507

62 *Elimination of Uric Acid in Disease of Glands with an Internal Secretion (Ueber Harnsaureausscheidung bei einigen Fallen von Blutdrusenerkrankungen) J Nowaczynski —p 1510 Commenced in No 48 —p 1478
63 Astringent Action of Aluminum Formate A Loewy —p 1512
64 Occupation Therapy for Soldiers with Nervous Affections (Arbeitstherapie fur nervenkranke Soldaten) P Jolly —p 1514
65* Diaphragm for Stereoscopic Roentgenography (Blende zur Anfertigung stereoskopischer Rontgenaufnahmen) K Lossen —p 1517
66 Five Day Fever Described in 1904 as Relapsing Influenza (Zur Frage der Febris wolhynica—His) E Apolant —p 1518

58 **Coordinated Reflexes**—Bohme's experience has apparently demonstrated that the motor reflexes in the legs are alike in man and in animals, the coordinated reflexes in particular A particularly instructive case of myelitis is described which left the boy of 8 with complete paralysis of the left leg and also of the right except that it can be flexed a very little at the hip There is also paralysis of the rectum and bladder sphincters This condition has persisted for five years to date The tendon reflexes are exaggerated, and there are occasionally involuntary movements of the legs On stroking the sole, the hip and knee become flexed, with dorsal flexion of foot and toes, and this same coordinated reflex movement of whole sets of muscles can be elicited when the skin of the leg or of the lower abdomen is irritated With gentle stroking the reverse reflex movement is elicited A strong stimulus causes flexion a weak stimulus extension The extension reflex is tonic, the limb remains in the extension position even when it has been passively induced The other leg becomes slightly flexed as the one leg becomes extended, and vice versa Eliciting with strong irritation the flexion reflex in one leg induces extension in the other With the patient lying on his back, both legs fully extended, application of the electric current to the sole of one foot causes flexion of this leg and a trifle later, of the other also With both legs flexed, gently stroking one sole causes rapid and extreme extension of both legs The crossed and double reflex movements and coordinated reflexes observed in this case throw light on the mechanism of crippling contracture, etc They also suggest treatment of paralysis by eliciting coordinate movements instead of merely stimulating the separate muscles Bohme suggests practicing the limb with reflex flexion and contraction Study of the arm reflexes in the animal kingdom has shown that those which are no longer needed for man have been lost In four-footed animals the front legs require the same reflex phenomena as the hind legs, but in man, as he does not use his arms in walking, the arm reflexes differ essentially from the leg reflexes There are no crossed reflexes in the arms, while the leg reflexes in man seem to be identical with those in animals, and their retention indicates some biologic importance

62 **Organ Therapy of Disease of Endocrine Glands**—Nowaczynski investigated in particular the elimination of uric acid in seven cases of exophthalmic goiter, dystrophia adiposogenitalis or Addison s disease, under organ therapy No essential influence on the elimination of uric acid under these conditions could be detected In a few cases there was increased elimination, but the material is too small for conclusions

Medizinische Klinik, Berlin

December 3 1916 XII No 49 pp 1275 1302

67 Perforation of Unicornus Uterus during Removal of Placenta O v Franque —p 1275
68 *Diabetes in Children (Diabetes mellitus im Kindesalter) H Kleinschmidt —p 1277
69 War Wounds of the Skull (Ueber Schadelverletzungen im Gebirgskriege) E Rychlik and A Lowenstein —p 1279
70 Paratyphoid A Thirty One Cases (Paratyphus A) J Schmautzer —p 1282
71 Diagnosis of War Wounds of the Abdomen (Diagnostik der Bauchschusse) K Hanusa —p 1284
72 Optochin in Pneumonia A Stuhmer —p 1286

68 **Diabetes in Children**—In the course of the last three years Kleinschmidt has had fourteen diabetic patients between the ages of 2 and 14 years, nine boys and five girls Only two of the children were from well-to-do families and only one was from a Jewish family In five of the cases the diabetes was kept under control and the children look well, they have been under observation for from three to twenty months In two other cases the diabetes was of a moderately severe type, but in the seven others it was very severe In children the transition from the mild to the severe type occurs more rapidly than in adults In some of the cases the diabetes had not been recognized until after this transition had occurred There was a history of diabetes in the progenitors in two cases and of obesity in one Treatment has to be strictly individualized as the key to success is quantitative regulation of the diet calculating at 70 the calories required for a year old child and 35 calories per kilogram for an adult

For the qualitative regulation he calculates 2 gm albumin per kilogram for older children and 3 gm per kilogram for younger children, giving it in the form of meat, egg and cheese, with abundance of vegetables and fruit and at first 100 gm bread or potatoes or oatmeal, making up the rest of the calories with fat, preferably butter When the child is taking this diet regularly, it is easy to determine its tolerance of carbohydrates by testing the limits of tolerance This is best done in an institution, the limit once established, the treatment of the mild types can be continued at home under regular control of the urine One girl of 6 was able to take, along with the vegetables and fruit 150 gm bread and 100 gm potato, another of 7 takes 30 gm oat flakes, 50 gm bread and 50 gm potato Others have been able to bring the tolerance to a high point There was no glycosuria in one girl of 11 even after test ingestion of 420 gm wheat rolls with 50 gm grape sugar

The children seemed to be thriving after the tolerance had been determined and the level kept below this They attended school part of the time and stood well in their studies Some of them increased in weight by several pounds, but two showed no increase, and the temperature was sometimes inclined to be subnormal But none of the children lost the tendency to glycosuria, it returned on the slightest provocation even after weeks or months, brought back by a fright, disappointment about a journey, or a bad school report but most frequently by some slight intercurrent catarrhal affection, parotitis or diarrhea It was easy to restore the tolerance again, but the accumulation of such disturbances must gradually permanently reduce the level of tolerance Hence a tendency to even slight catarrh of the upper air passages must be regarded as a serious complication for diabetes in children In three of his cases measles had a decidedly unfavorable effect, in one the diabetes was first discovered after measles In a case reported by Naunyn, varicella entailed fatal acidosis, and in Starck's case whooping cough had this effect, but in one of Kleinschmidt's cases the girl of 7 passed through severe hemorrhagic uremic nephritis without return of the glycosuria This child had a suppurating skin affection, besides the diabetes

In the severe forms, vegetable days and oatmeal days sometimes prove of benefit, but the oatmeal failed completely in the case of one child between 2 and 3 He gave sodium bicarbonate or sodium or potassium citrate whenever the urine was found acid The acidity of the urine is a simple and exact gage of the acidosis, and thus of the danger threatening the child In six of his cases it proved impossible to render the urine alkaline, even with 40, 60 or 80 gm of the alkali, and coma soon followed In this stage no influence was apparent even from intravenous injection of a 5 per cent solution of sodium bicarbonate Aside from the alkali, he knows of no effectual drug treatment of diabetes Whether diabetes is liable to develop later in life when children have shown alimentary glycosuria or transient glycosuria during an infectious disease or as a symptom of myxedema, is still a question He has so far seen no tendency of the kind in cases long under observation

Munchener medizinische Wochenschrift, Munich

November 28 1916 LXIII No 48 pp 1685 1716

73 The Pituitary Body as Regulator of Diuresis and of the Specific Gravity of the Urine H Bab —*p 1685 To be continued*
74 *Treatment of Secondary Anemia by Intragluteal Injections of Nondefibrinated Blood H Kohler —p 1688
75 Combating a Cholera Epidemic Bofinger —p 1689

76 *Prevention and Treatment of Whooping Cough (Zur Verhutung und Behandlung des Keuchhustens) E Doernberger —p 1691
77 *Combating Venereal Diseases (Bekampfung der Geschlechtskrankheiten) L v Zumbusch and A Dyroff —p 1692
78 Treatment of Erysipelas with Quartz Lamp (Behandlung des Erysipels mit der Quarzlampenbestrahlung) F Konig —p 1701
79 Early Treatment of Abdominal Wounds (Beobachtungen und Resultate bei fruhzeitig eingelieferten Bauchschüssen) Oberst —p 1702
80 The Tendency to Scoliosis after Amputation of an Arm or Leg (Ueber skoliotische Haltung einseitig Amputierter) P Erlacher —p 1705
81 Treatment of Acute Dysentery (Zur Behandlung der akuten—dysenterischen—Darmentzundungen im Kriege) A Plehn —p 1707
82 Obscure Febrile Affections (Ueber unklare fieberhafte Erkrankungen) E Becher —p 1708
83 Optochin in Pneumonia Ninety Cases B Leick —p 1710
84 Five Day Fever' Two Cases E Scheu'e —p 1712
85 Gaseous Abscess of the Brain Two Cases Recovery E Rychlik —p 1713
86 Immobilizing Dressing for Fractured Femur (Transportverbande bei Oberschenkelfrakturen) S Weil —p 1714
87 Technic for Examining the Blood in Malaria H Lipp —p 1715

74 **Intragluteal Injections of Blood in Secondary Anemia** —Kohler has only two cases to report, but the benefit was so prompt and permanent and the technic so simple that he commends the measure for general adoption No attempt was made to defibrinate the blood The donor was the sister in one case A single injection answered the purpose here, the reds had dropped to 1,188,000 and the hemoglobin to 20 per cent after constant losses of much blood at the first menstruation By the fifth week after the intragluteal injection of blood the figures were 4 320 000 and 65 per cent The other was a maternity case with septic streptococcus endometritis reds 1 100 000 hemoglobin 15 Eight injections were made at four-day intervals to a total of 150 c c of blood In two months the reds ran up to 3 276 000 the hemoglobin to 50, and the improvement progressed afterward

76 **Whooping Cough** —Doernberger remarks that nothwithstanding the recommendations by the manufacturing chemists of dozens of remedies ending in in" on" and ol claimed to be specifics for whooping cough with testimonials as to their efficacy signed by reputable physicians and distributed broadcast still as ever the best means of relief, not cure is pure air free from dust and soot But this is hard to get in the homes of the poor, and health resorts are more and more disinclined to receive whooping cough cases to say nothing of the danger of contagion of others in cars and trains on the way to health resorts He suggests as a useful measure that a certain part of some public park be fenced off for whooping cough children and their attendants Roof gardens have also been proposed He cites the placards in use in Havana to show that certain places regard whooping cough seriously The public health service there posts a notice on the bill boards stating that whooping cough is epidemic in a certain district and warning against it, especially for young children, also giving directions for the children affected The placard on the whooping cough house also gives directions for preventing contagion of others

77 **Necessity for Including Venereal Diseases Among those Requiring Compulsory Notification and Compulsory Treatment** —This communication was translated nearly in full for the Social Medicine and Medical Economics Department January 27, p 306 Zumbusch is professor of skin diseases and syphilis at the University of Munich and Dyroff is professor of state and constitutional law (*Staatsrecht*) there

Zeitschrift fur Tuberkulose, Leipzig

November 1916 XXVI No 5 pp 321 400

88 *Detection and Treatment of Tuberculosis in Children (Erkennung und Heilung der Tuberkulose im Kindesalter) J Hollos —p 321
89 *Changes in Blood Picture under Influence of Induced Pneumothorax (Wirkung des kunstlichen Pneumothorax auf das Blut der Tuberkulosen) M Gutstein —p 336
90 Indications from Medical and Social Standpoints for Sanatorium Treatment of Pulmonary Disease (Wer gehort—vom arztlichen und sozialen Standpunkt betrachtet—in die Lungenheilstatte?) Litzner —p 367
91 Cure of Lupus under Phototherapy (Beitrag zur Lupusbehandlung mit kunstlicher Hohensonne) W Kaufmann —p 370

88 **Detection and Treatment of Tuberculosis in Children** —Hollos emphasizes that the treatment of tuberculosis in children must include prevention of repeated infection as well as measures to strengthen the resisting powers besides systematic specific treatment Every child known to be exposed to tuberculosis can be regarded as already infected The more sensitive to toxic influences the child's organism, the greater the production of antibodies, and hence the tuberculous process does not spread so rapidly, but the various functional disturbances from the toxins are more pronounced Such children are frail but they may live their whole life without the tuberculosis becoming manifest Only when in consequence of unhygienic conditions, alcoholism, measles or pregnancy, the immunity is lowered is the tuberculosis able to get the upper hand Sad examples of this are found in the soldiers with previously latent tuberculosis who return from the front with pulmonary phthisis

Latent tuberculosis in children is often revealed by defects in development The previously normal appearing child begins to grow thin and pale the skin and muscles feel flabby and the bones are inclined to soften and bend The mind often develops precociously and the children are known as good scholars, while others are correspondingly backward Children with latent tuberculosis "catch cold" readily, eczema and pruritus are frequent and there may be periods of some difficulty in breathing with or without bronchial catarrh Pains at different points are also instructive, by simulating appendicitis they have been known to lead to an unnecessary operation Owing to the influence of the tuberculosis toxins on the genital organs the picture of puberty may differ entirely from normal These toxins can act on the glands with an internal secretion either to irritate them to exaggerated functioning or to inhibit their functioning which explains why one child may grow tall and spindling under their influence while another may be short and stout There may be extreme emaciation or there may be obesity, premature or long retarded puberty frequent profuse menstruation or the menses may not commence until the sixteenth or eighteenth year or later and then occur at long and irregular intervals In boys early and repeated pollutions and sexual nervousness at puberty should arouse suspicion of latent tuberculosis

All these disturbances in tissues and functions which are induced by tuberculous infection in the growing child form as a whole the clinical picture of Stiller s universal asthenia' Others call it the lymphatic temperament" All seem to regard it as an inherited congenital predisposition a sub standard constitution when in fact it is merely the sum total of the disturbances induced by tuberculous infection during childhood It is not a congenital anlage and an inherited body frame but it is the results of the insidious sapping of an acquired disease And this, he reiterates is under our control if we recognize and attack it early enough with specific treatment.

89 **Influence of Artificial Pneumothorax on the Blood** —Gutstein gives the minute details of his examination of the blood of twenty tuberculous patients being treated with induced therapeutic pneumothorax In favorable conditions the number of reds rapidly and materially increased and the hemoglobin percentage also increased, but more slowly, while the total white count was reduced but the lymphocytes and eosinophils increased in numbers These were the findings with a successful pneumothorax free from complications When there were complications, these changes were not observed or the reverse was noted the hemoglobin declining while hyperleukocytosis and lymphopenia developed These changes in the blood picture are instructive for the prognosis It should be guarded when the blood shows hyperleukocytosis with lymphopenia and the hemoglobin percentage is dropping

Gazzetta degli Ospedali e delle Cliniche, Milan

December 17 1916 XXXVII No 101 pp 1585 1600

92 Pulsating Hematoma and Operative Treatment G Campora —p 1588
93 *Treatment of Frozen Limbs (Pei nostri congelati) T Silvestri —p 1592

December 21 No 102 pp 1601 1616

94 *Epidemic of Hemorrhagic Disturbances in the Troops on Active Service (Sindromi emorragiche ad insorgenza epidemica tra le truppe operanti) P D Siccardi —p 1605

December 24 No 103 pp 1617 1632

95 Epidemic Jaundice (Sull'eziologia dell'ittero epidemico) M Ascoli and S Perrier —p 1618

93 **Freezing Injuries**—Silvestri remarks that freezing injuries are the scourge of the troops in winter, and that every effort must be made to relieve at brief intervals the troops exposed to freezing temperatures, and have them move about as keeping still favors freezing Freezing of the first or second degree he has found always heals spontaneously, regardless of what local measures may be applied They may relieve the suffering however This is not always proportionate to the gravity of the injury but depends more on the man's sensitiveness to pain Everything should be avoided —bandages, etc —that tend to have the limb kept still Massage, possibly with some sedative salve, and movements—these are the sovereign means of cure, supplemented when needed by scarification of the blisters, application of an absorbing powder, an extremely light protecting dressing and raising the foot, if there is much edema with early active exercise The men should not be allowed to stay in bed during the day, movement is the best of all measures, and although it may be painful at first, it soon relieves the suffering and hastens the cure It is not enough to advise the men to keep up and about, they must be made to do it With freezing of the third degree, the dressing must also be light permitting ample access of air The limb should be raised but not covered Silvestri has found calcium salts very useful in treatment of severe freezing, with or without strychnin to improve vasomotor tonus Both should be given freely but he warns against giving antitetanus serum in case of freezing of the second and third degrees

94 **Hemorrhagic Affections in the Italian Troops**—Siccardi noticed last summer the epidemic appearance of a transient hemorrhagic diathesis among the troops serving at the highest altitude among the mountains Whatever affection the men might be having, a hemorrhagic character was strikingly evident Hemorrhagic scurvy formed 2 5 per cent of the cases, and a hemorrhagic parascurvy," as he calls it, formed 42 per cent The symptoms were the same as in true scurvy, but the general health was not impaired and in 29 per cent there was no stomatitis In 51 per cent of the cases there was typical exanthematous purpura The course in all the cases was benign Rest and dieting seemed to be all that was necessary Defective ventilation of the underground shelters, the cold and damp, wet feet, wet clothes, and the unbalanced diet easily explain the tendency to these troubles Rest dry warmth and change of diet soon restored normal conditions as a rule Bacteriologic tests were constantly negative except in a small group of 0 5 per cent who presented infectious hemorrhagic skin lesions with typhoid plus paratyphoid B in some cases Of the total number of men with this hemorrhagic tendency, 4 per cent were in the frozen limb group, weak but with no signs of sepsis

Pediatria, Naples

November 1916 XXIV No 11 pp 641 704

96 *Improved Technic for Intubation for Stenosis of the Larynx (Terapia delle stenosi laringea col metodo Bellotti Isonni modificato) L Leto —p 641

97 *Study of the Meningococcus in a Recent Epidemic of Meningitis (Comportamento morfologico e biologico dei meningococchi di Weichselbaum isolati durante l epidemia di meningite cerebro spinale scoppiata in Palermo nell anno 1915 1916) G Rutelli —p 650

98 Multiple Cerebral Tuberculomas A Corica —p 660

99 *The Hemolyzing Power of Certain Preparations of Antimony Used in Therapeutics G Caronia —p 667

96 **Improved Technic for Intubation with Stenosis of the Larynx**—With Leto's modification of the Isonni technic a long curved needle is worked through the thyrohyoid membrane a few millimeters below the margin of the hyoid The forefinger in the pharynx serves as guide to the needle and obviates any injury of the throat As the needle enters the throat it is drawn out through the mouth, and the long silk thread it brings with it is fastened to the laryngeal tube The tube is then easily introduced, aided by pulling on the silk coming out through the thyrohyoid membrane below The silk is then tied over a strip of gauze fastened like a cravat around the throat The tube is thus held firmly in place In one of the four cases of membranous croup described in which intubation was done by this technic, the tube had to be worn for six weeks The silk became macerated during this period but the procedure was easily repeated Nothing was found to suggest injury from the introduction of the needle, not even in the one case that came to necropsy

97 *Epidemic Meningitis*—Rutelli isolated Weichselbaum's meningococcus in thirty-seven of the nearly eighty cases of meningitis in a recent epidemic at Palermo, and he tabulates the morphologic and biologic peculiarities of the coccus and various features of the disease They demonstrate that the meningococci in various epidemics differ biologically in certain respects, showing that antiserums should be made from the special strain involved Only when the antiserum is made from the patients' own meningococci can it be depended on to be actually effectual in a given epidemic

99 **Correction of Hemolyzing Property of Antimony**—Caronia reports experiments which show that the pronounced destruction of the blood corpuscles liable with intravenous injection of preparations of antimony can be prevented by addition of salt He advises using a weak solution of the antimony preparation not over 0 5 or 1 per cent, in a 0 7 or 0 75 solution of sodium chlorid He experimented mostly with antimony and potassium tartrate

Policlinico, Rome

December 1916 XXIII Medical Section No 12 pp 409 448

100 Organic Nervous Disturbances Following War Wounds of the Brain (Sindromi nervose organiche consecutive a lesioni—da proiettili—del cervello) G Mingazzini —p 409

101 *Painful Subcutaneous Nodules with General Depression (Ricerche cliniche sopra un caso di 'adipositas dolorosa '—morbo di Dercum) F Alzona —p 429

December Surgical Section No 12 pp 353 392

102 *Correction of Congenital Pseudoarthrosis of the Tibia G Serafini —p 353

103 *Urea Test of Kidney Functioning (La prova dell azoturia come metodo di esame della funzioni renale) E Pirondini —p 368

104 Interscapular Thoracic Amputation for Primary Epithelioma of the Head of the Humerus (Contributo clinico all amputazione inter scapulo toracica ed istopatologico ai tumori epiteliali primitivi delle ossa) N Giannettasio —p 371

101 **Adiposis Dolorosa**—Alzona reports what he classes as a case of Dercum's disease in a soldier of 26 in the trenches During the last seven months small, very painful bunches have developed at various points under the skin, sparing only the face, upper arms and shoulders The appearance of each of the small swellings is preceded by a period of pain in the region and the pain persists The man tires readily and has pains in the lumbar and heart region His mother and one brother are epileptics and the man himself has had attacks and has passed through typhoid twice Epinephrin and atropin displayed slight if any action, but pilocarpin accelerated the heart beat and induced nausea general malaise and profuse salivation and sweating The metabolic findings under each of these drugs are tabulated and compared with those reported in other cases of the kind Few if any have been studied at such an early stage

102 **Pseudarthrosis of the Tibia**—The bones refused to heal after a fracture of the tibia just above the ankle in a girl of 6, and by the age of 16 the foot swung outward almost at a right angle from the leg The pseudarthrosis prevented any use of this foot The fibula curved but was intact A broad wedge was cut out of it and the tibia was resected above and below the pseudarthrosis With this operation approximately normal conditions were restored and the leg can now be used normally with a high sole He regards the trouble as of congenital origin as nothing else explains the complete lack of consolidation, and the fracture occurred with such slight trauma that it was almost spontaneous

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THE RELATION OF THE ACID-BASE EQUILIBRIUM OF THE BODY TO CARBOHYDRATE METABOLISM

AND ITS APPLICATION IN HUMAN DIABETES *

FRANK P UNDERHILL
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A THE RELATION OF THE ACID-BASE EQUILIBRIUM TO CARBOHYDRATE METABOLISM

Under normal conditions the content of blood sugar may be regarded as one of the body's constants Transitory fluctuations may occur incident to ingestion of food, etc, but the variations encountered are confined within rather narrow limits The exact mechanism controlling the constancy of the blood sugar content is unknown It is well recognized, however, that a variety of agencies may temporarily throw out of equilibrium the blood sugar regulating mechanism producing either a state of hyperglycemia, with an accompanying glycosuria, or a condition of hypoglycemia in which sugar may or may not appear in the urine The introduction into the organism of epinephrin may be cited as an example of the type of agents leading to the development of hyperglycemia and glycosuria Phlorizin causes hypoglycemia with glycosuria, whereas hydrazin and phosphorus induce a diminished blood sugar content without the appearance of urinary sugar

The mechanism regulating the level of blood sugar is peculiarly sensitive to disturbances in the acid-base equilibrium of the body These may be manifested in either direction, namely, in conditions in which the equilibrium is overbalanced by excess of acid or deficiency of base (acidosis), or by circumstances leading to an overwhelming preponderance of base or temporary deficiency of acid (alkalosis) To avoid ambiguity it may be explained that the term "acidosis" is intended here to mean a disturbance in the acid-base equilibrium of the body whereby the introduction of, or the excessive production of, acid (ketogenic or otherwise) causes the withdrawal of base from the body The term "alkalosis" is sufficiently clear to need no special definition

Acid introduction or acid production in the body exerts a distinct influence on carbohydrate metabolism This assertion is supported by the observation of Elias[1] that the ingestion of acid by dogs and rabbits leads to hyperglycemia and glycosuria Elias[2] has also concluded that the so-called "hunger diabetes" of young dogs, as described by Hofmeister,[3] is in part, at least, a condition due to acidosis, as indicated by the lowered carbon dioxid content of the blood and of the alveolar air In human diabetes also it is conceded that acidosis arises This brief review of the literature on the subject makes it evident that the introduction of acid or the production of acid in the organism is associated with a disturbance of blood sugar content which is manifested in one direction, namely, blood sugar content is augmented

On the other hand, a state of alkalosis is likewise potent in exerting an influence on carbohydrate metabolism, but this action is contrary to that of acidosis That alkali introduction influences carbohydrate regulation in the body was demonstrated by Pavy and Godden,[4] who found that the glycosuria provoked by ether or chloroform disappears after the intravenous injection of sodium carbonate Given by mouth or intravenously, sodium carbonate will abolish the hyperglycemia of "hunger diabetes", and according to Elias,[2] the glycosuria will either entirely disappear or be greatly diminished After removal of the pancreas, sodium carbonate introduced into the blood stream of the dog causes a diminution of the sugar excretion [5] Murlin and Kramer[6] showed that under the influence of sodium hydroxid the respiratory quotient is increased in depancreatized dogs In agreement with this finding are the results of Kramer and Marker,[7] who have stated that "sugar retained when sodium carbonate is administered to depancreatized dogs is not stored as glycogen nor is it eliminated by way of the saliva or the gastro-intestinal tract" These observations[8] indicate that alkali introduction facilitates sugar combustion in the depancreatized dog

The explanation for the closely agreeing observations just cited probably lies in the effect which sodium carbonate exerts at times on the blood sugar content of normal animals The intravenous injection of sodium carbonate may cause, although not invariably, a marked diminution in the blood sugar content[9] of rabbits When blood sugar content is affected, the diminution is transient, the normal being regained within one or two hours Moreover, the hyperglycemia and glyco-

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* From the Sheffield Laboratory of Physiological Chemistry Yale University

* Reported to the Society for Experimental Biology and Medicine March 15 1916 Compare Proc Soc Exper Biol and Med 1916 **13** 111

[1] Elias Biochem Ztschr 1912 1913 **48**, 120

[2] Elias and Kolb Biochem Ztschr 1913 **52**, 331

[3] Hofmeister Arch f exper Path u Pharmakol 1889 1890 **26**, 355

[4] Pavy and Godden Jour Physiol 1911 1912 **43**, xii

[5] Murlin and Kramer Jour Biol Chem 1913 **15**, 365 1916 **27**, 481

[6] Murlin and Kramer Jour Biol Chem 1916 **24**, xxv 1916 **27** 517

[7] Kramer and Marker Jour Biol Chem 1916 **29**, xxii 1916 **27**, 499

[8] More recently Murlin and Craver (Jour Biol Chem 1916 **28**, 289) have asserted that intraduodenal infusion of sodium carbonate in human diabetes causes a distinct reduction of glycosuria On the other hand similar treatment with sodium bicarbonate has the opposite effect

[9] Underhill Jour Biol Chem 1916 **25**, 463

103 Urea Test of Kidney Functioning—Pirondini called attention two years ago to the valuable information to be derived by experimental azoturia He gives for the test 300 c c of distilled water in which have been dissolved 10 gm of urea (The test was described in THE JOURNAL, 1915 **65,** 835) He here reports the details of four cases in which this test gave most instructive findings, harmonizing with the Ambard index throughout One of the cases had forensic interest the woman claiming large damages for alleged cantharidin poisoning of the kidney The azoturia test showed normal conditions in the kidneys, confirming other findings

Revista de la Asociacion Medica Argentina, Buenos Aires

November 1916 XXV No 144 pp 459 586

105 *Local Anesthesia for Operations on the Neck (Anestesia local regional e infiltrativa en las operaciones de cuello) J M Jorge —p 459
106 Sarcoma of the Iris (Caso de leucosarcoma del iris) R Argañaraz —p 471
107 Delivery at Term with Uterus Pseudo Didelphys (Embarazo a termino en un utero bicornio bicervical) E A Boero —p 485
108 Sensory Hemiplegia (Hemiplejias sensitivas) M R Castex and N D Rosso —p 495 Continuation
109 Serum Reactions in Leprosy (Investigaciones serologicas en la lepra) A Sordelli and G Fischer —p 558
110 Hematometra in One Side of Double Uterus (Hematometria unilateral) O L Bottaro —p 570

105 Local Anesthesia for Operations on the Neck—Jorge comments on the gratifying way in which local anesthesia is [illegible]nding its scope in the surgical services He prefers as [illegible] the infiltration technic the patient under the influence [illegible]me sedative, but for operations on the neck the para-[illegible]ebral technic has proved its superior advantages The [illegible]rves forming the cervical plexus are blocked by injecting the anesthetic at two points on a line from the posterior margin of the mastoid to the lateral tubercle of the sixth cervical The points are at the intersection of two horizontal lines one passing along the inferior margin of the lower jaw, and the other passing along the most pronounced portion of the thyroid cartilage The needle is pointed toward the anterior plane of the transverse processes, and 4 or 6 c c of the 1 or 2 per cent novocain-epinephrin solution are deposited thus in the plexus zone This nerve-blocking procedure has to be supplemented by infiltration anesthesia of the operation field With this technic he has safely excised enormous goiters, congenital cysts and enlarged glands and excised the sternocleidomastoid muscle, extracted foreign bodies and resected cancers—a total of over 100 operations on the neck, some two hours long

Siglo Medico, Madrid

December 9 1916 LXIII No 3287 pp 785 800

111 *Changes in the Blood Picture as a Guide in Prognosis (La linea de resistencia de Sondern en la apendicitis) L Cardenal —p 785
112 Endemic Malaria in Spain E Luengo —p 787 Concluded in No 3288 p 808
113 The Ethical and the Vicious Press (La buena y la mala prensa) C Juarros —p 791

111 Changes in the Blood Picture as Aid to Prognosis—Cardenal relates that his clinical experiences have confirmed the instructive bearing of Sondern's line of resistance in estimating the defensive forces of the organism during an attack of appendicitis, for example He gives a typical chart, and reiterates that slight changes in the relative blood count indicate mild infection, a slight increase in the numbers of neutrophils, and of leukocytes in general, indicates a good organic resistance and mild infection, slight neutrophilosis and pronounced leukocytosis, mild infection and strong resistance, much neutrophilosis and much leukocytosis testify to severe infection but good defense, much neutrophilosis and slight leukocytosis, severe infection and low resisting powers Any increase in the numbers of neutrophils with decrease of leukocytes is a sign of increasing gravity of the infection and reduction of the organic defenses The larger the relative proportion of neutrophils, the greater the probability of pus production None of his patients with neutrophilosis of 94½ per cent recovered

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

December 2 1916 II No 23 pp 1985 2060

114 *Ringworm of the Beard (Trichophyton rosaceum) D Muijs p 1985
115 *Why the Deaf Hear Better in Railroad Trains, etc (Beter hooren in lawaai) H Burger —p 1992

114 Ringworm of the Beard—Muijs comments on the prevalence at Amsterdam of lesions in the beard for which the *Trichophyton rosaceum* is responsible He gives a colored plate showing its growth on a culture medium of 4 per cent peptone He also tabulates the varieties of ringworm as published at Paris Berlin London and elsewhere He has encountered fifty six cases at Amsterdam in which this trichophyton was found in the beard One man returned later bringing his son with beginning ringworm of the scalp and two daughters with ringworm of the skin This trichophyton was found in all He also detected it in nine other cases, six of the scalp two of the skin and one of the nails—a total of sixty five cases Five cases of this same ringworm of the beard have been reported at Paris, three at Parma, one at Hamburg and two at London—a total of sixty-seven in which the *Trichophyton rosaceum* has been found

115 Why the Deaf Hear Better in Railroad Trains—Burger argues that the deaf do not really hear better in the midst of noises as is often assumed Those with normal hearing hear so much less under these conditions that the hearing capacity of the more or less deaf profits in comparison This suggests that it is improved by the racket when in fact merely a lowering of the standard of hearing is responsible for the difference

Hospitalstidende, Copenhagen

December 6 1916, LIX No 49 pp 1181 1204

116 Experimental Research on Suture of Bronchi and Drainage of the Pleura F Nielsen —p 1181 Concluded in No 50
117 *Fibrositis in the Legs (Fibrositis extremitatum inferiorum) P Lorenzen —p 1193

117 Fibrositis in the Legs—Lorenzen has encountered comparatively frequently a typical clinical picture caused by infiltration of the connective tissue in the feet and also in the legs The tenderness and pain may interfere with the use of the leg The symptoms may resemble those from severe arteriosclerosis in the region The pains are increased by functioning, and they may spread upward even beyond the legs and there may be tonic contractions In children and young people functional disturbances predominate, either as a weakness or altered pose of the foot, with chilliness and sweating of the foot and other motor disturbances The fibrositis may be palpated not only at the point of greatest tenderness but elsewhere on that leg and sometimes on both The almost invariable valgus position of the big toe, or hammer toe, suggests that these deformities are always traceable to some form of this fibrositis The frequent association with flatfoot is also suggestive of a causal connection

The fibrositis may affect persons of all ages, and it is often mistaken for rheumatism, gout, varices, or merely flatfoot disturbance Treatment applied on these mistaken premises is futile, while prompt recovery is the rule under local palpation and exercise of the tendons and muscles involved A history of prolonged exposure of the feet to cold or dampness or overuse alone or in combination, can usually be elicited One of his child patients had been going barefoot during a long period of damp, bleak weather A constitutional predisposition to nervous and joint troubles was more or less manifest in every case Only a few had been relieved by heat and warmth, or by some special attitude of the foot The infiltration can be palpated at various points in the foot, as he describes in detail, mostly along the flexor brevis digitorum or the extensor tendons of the big toe Peritendinitis is the rule, and these changes can be traced for some distance A few times he found a diffuse chronic swelling running around the foot, the ankle and lower part of the leg The fibrositis may extend to the knee, and the veins are often varicose There may be pain on pressure of the veins but it can be traced to the tender muscle below Sometimes distinct nodules can be felt on the sole, below the tuberosity of the calcaneum Fibrositis in the neck shoulders, arms and lumbar regions is more common, but even here it is liable to be erroneously diagnosed and treated

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NEW HAVEN, CONN

A THE RELATION OF THE ACID-BASE EQUILIBRIUM TO CARBOHYDRATE METABOLISM

Under normal conditions the content of blood sugar may be regarded as one of the body's constants Transitory fluctuations may occur incident to ingestion of food, etc, but the variations encountered are confined within rather narrow limits The exact mechanism controlling the constancy of the blood sugar content is unknown It is well recognized, however, that a variety of agencies may temporarily throw out of equilibrium the blood sugar regulating mechanism producing either a state of hyperglycemia, with an accompanying glycosuria, or a condition of hypoglycemia in which sugar may or may not appear in the urine The introduction into the organism of epinephrin may be cited as an example of the type of agents leading to the development of hyperglycemia and glycosuria Phlorizin causes hypoglycemia with glycosuria, whereas hydrazin and phosphorus induce a diminished blood sugar content without the appearance of urinary sugar

The mechanism regulating the level of blood sugar is peculiarly sensitive to disturbances in the acid-base equilibrium of the body These may be manifested in either direction, namely, in conditions in which the equilibrium is overbalanced by excess of acid or deficiency of base (acidosis), or by circumstances leading to an overwhelming preponderance of base or temporary deficiency of acid (alkalosis) To avoid ambiguity it may be explained that the term "acidosis" is intended here to mean a disturbance in the acid-base equilibrium of the body whereby the introduction of, or the excessive production of, acid (ketogenic or otherwise) causes the withdrawal of base from the body The term "alkalosis" is sufficiently clear to need no special definition

Acid introduction or acid production in the body exerts a distinct influence on carbohydrate metabolism This assertion is supported by the observation of Elias[1] that the ingestion of acid by dogs and rabbits leads to hyperglycemia and glycosuria Elias[2] has also concluded that the so-called "hunger diabetes" of young dogs, as described by Hofmeister,[3] is in part, at least, a condition due to acidosis, as indicated by the lowered carbon dioxid content of the blood and of the alveolar air In human diabetes also it is conceded that acidosis arises This brief review of the literature on the subject makes it evident that the introduction of acid or the production of acid in the organism is associated with a disturbance of blood sugar content which is manifested in one direction, namely, blood sugar content is augmented

On the other hand, a state of alkalosis is likewise potent in exerting an influence on carbohydrate metabolism, but this action is contrary to that of acidosis That alkali introduction influences carbohydrate regulation in the body was demonstrated by Pavy and Godden,[4] who found that the glycosuria provoked by ether or chloroform disappears after the intravenous injection of sodium carbonate Given by mouth or intravenously, sodium carbonate will abolish the hyperglycemia of "hunger diabetes", and according to Elias,[2] the glycosuria will either entirely disappear or be greatly diminished After removal of the pancreas, sodium carbonate introduced into the blood stream of the dog causes a diminution of the sugar excretion [5] Murlin and Kramer[6] showed that under the influence of sodium hydroxid the respiratory quotient is increased in depancreatized dogs In agreement with this finding are the results of Kramer and Marker,[7] who have stated that "sugar retained when sodium carbonate is administered to depancreatized dogs is not stored as glycogen nor is it eliminated by way of the saliva or the gastro-intestinal tract" These observations[8] indicate that alkali introduction facilitates sugar combustion in the depancreatized dog

The explanation for the closely agreeing observations just cited probably lies in the effect which sodium carbonate exerts at times on the blood sugar content of normal animals The intravenous injection of sodium carbonate may cause, although not invariably, a marked diminution in the blood sugar content[9] of rabbits When blood sugar content is affected, the diminution is transient, the normal being regained within one or two hours Moreover, the hyperglycemia and glyco-

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* From the Sheffield Laboratory of Physiological Chemistry Yale University

* Reported to the Society for Experimental Biology and Medicine March 15 1916 Compare Proc Soc Exper Biol and Med 1916 **13** 111

[1] Elias Biochem Ztschr 1912 1913 **48**, 120

[2] Elias and Kolb Biochem Ztschr 1913 **52**, 331

[3] Hofmeister Arch f exper Path u Pharmakol 1889 1890 **26**, 355

[4] Pavy and Godden Jour Physiol 1911 1912 **43** vii

[5] Murlin and Kramer Jour Biol Chem, 1913 **15**, 365 1916 **27**, 481

[6] Murlin and Kramer Jour Biol Chem 1916 **24**, xxv 1916 **27**, 517

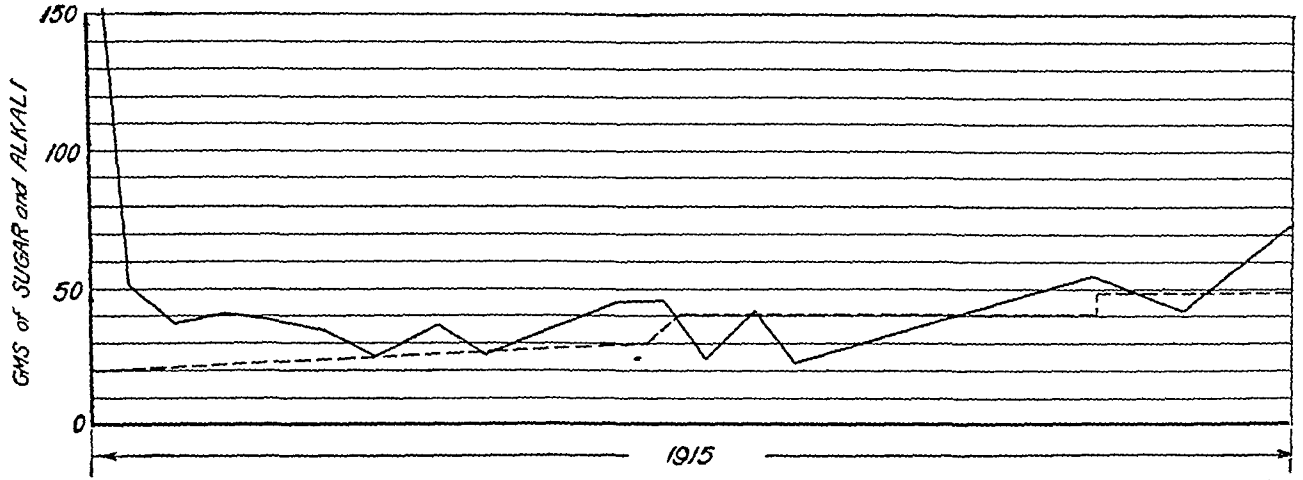
[7] Kramer and Marker Jour Biol Chem, 1916 **29**, xxiv 1916, **27**, 499

[8] More recently Murlin and Craver (Jour Biol Chem 1916 **28**, 289) have asserted that intraduodenal infusion of sodium carbonate in human diabetes causes a distinct reduction of glycosuria On the other hand similar treatment with sodium bicarbonate has the opposite effect

[9] Underhill Jour Biol Chem 1916 **25**, 463

suria provoked in rabbits by epinephrin[10] are both significantly decreased if sodium carbonate has been administered at suitable periods of time previous to epinephrin administration

The regulation of blood sugar content would thus appear to be associated in part at least with the equilibrium between acids and bases in the body Acid tends to increase blood sugar content, acid has an influence in causing sugar elimination On the other hand, base or alkali tends to reduce the blood sugar content These ideas fit in well with facts concerning other conditions associated with carbohydrate metabolism Underhill and Blatherwick[10] have shown that previous to the tetany provoked by removal of the thyroid-parathyroid mechanism, blood sugar content may be greatly diminished Calcium relieves the tetany and restores blood sugar to normal In the disturbance of carbohydrate metabolism induced by epinephrin, calcium[11] causes a distinct change in the character of the curve of hyperglycemia, and markedly increases the amount of sugar appearing in the urine under the stimulus of epinephrin administration In other words, calcium behaves in a manner analogous to hydrochloric acid Wilson[12] and his co-workers had previously found that prior to the onset of tetany after removal of the thyroids and parathyroids a condition of alkalosis develops The introduction of acid relieves the symptoms equally as well as calcium administration The period of alkalosis corresponds fairly well with the interval of low blood sugar observed by Underhill and Blatherwick In view of these facts, it is probable that the condition of alkalosis may be responsible for the accompanying hypoglycemia The resumption of normal blood sugar content is induced by introduction of either calcium or hydrochloric acid, which have a common behavior in increasing blood sugar content under appropriate conditions The introduction into the dog of the diamin, hydrazin, results in a transitory decrease in the percentage of sugar in the blood[13] with an accompanying increase *of the respiratory quotient* [14] At the period of hypoglycemia, the excreted urine exhibits a strongly alkaline[15] reaction, probably owing to carbonates



Influence of sodium bicarbonate ingestion on the glycosuria of a

These observations lead to the conclusion that a condition of acidosis facilitates the elimination of carbohydrate from the body, whereas in alkalosis there is a tendency to conserve carbohydrate

B THE APPLICATION OF THE IDEAS CONCERNING ACID-BASE EQUILIBRIUM TO HUMAN DIABETES

If the ideas reviewed above concerning acid-base equilibrium in its relation to carbohydrate metabolism are applied to human diabetes, one gains the following conception of its chemical pathology Without reference to what may initiate the abnormal condition, a state of acidosis unquestionably develops and must tend to become aggravated, if anything, by the characteristic acid-producing foods of the conventional diabetic dietary In general, meats and cereals are acid-producing foodstuffs, vegetables and fruits, on the other hand, usually yield an excess of base Those foodstuffs which are richest in base-producing substances are forbidden to the diabetic individual because they contain relatively large quantities of carbohydrates The conventional diabetic dietary, consisting largely of meats and other protein foods and fats, would therefore have a decided tendency to aggravate the condition of acidosis induced by the abnormal state From what has been pointed out already, it seems reasonable to conclude that anything which will counteract or neutralize the continuous stream of acid entering the body should benefit the individual One is led to ask, What influence would this have on the excretion of sugar if the organism were once saturated, so to speak, with alkali and enough alkali continually supplied to neutralize the exogenous and endogenous acid? These considerations have been put to the test in a human diabetic, aged 26 years, with a very severe type of diabetes

Case 1—A young university instructor had been aware of his condition for several months, and although he had received medical aid and was on a so-called "diabetic diet," his condition was steadily growing worse He first came under my observation, Jan 4 1915, and at this time was excreting more than 150 gm of glucose per day, although on a 'diabetic diet' The urine contained large quantities of acetone and diacetic acid, and the subject was losing weight rapidly The body weight, Jan 4, 1915, was 146 pounds

Dietetic Treatment—By restriction of the diet to the point at which little or no carbohydrate was consciously ingested *in accordance with the suggestions of Joslin's dietary chart*, the daily output of sugar was reduced to from 25 to 50 gm, acetone and diacetic acid always being present in relatively large quantities Sodium bicarbonate in small amounts was given for the purpose of neutralizing the ketogenic substances in accordance with the usual therapeutic practice After a year's interval, in spite of very stringent dietary restrictions, the sugar excretion suddenly increased to from 70 to 80 gm daily The progress of the subject during the period of a year may be seen from the chart

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[10] Underhill and Blatherwick Jour Biol Chem 1914 **18**, 87 **19** 119

[11] Underhill Jour Biol Chem 1916 **25**, 447

[12] Wilson, Stearns and Thurlow Jour Biol Chem 1915 **23**, 100 Wilson Stearns and Janney Ibid 1915 **23** 123

[13] Underhill Jour Biol Chem 1911 **10** 159

[14] Underhill and Murlin Jour Biol Chem 1915 **22** 499

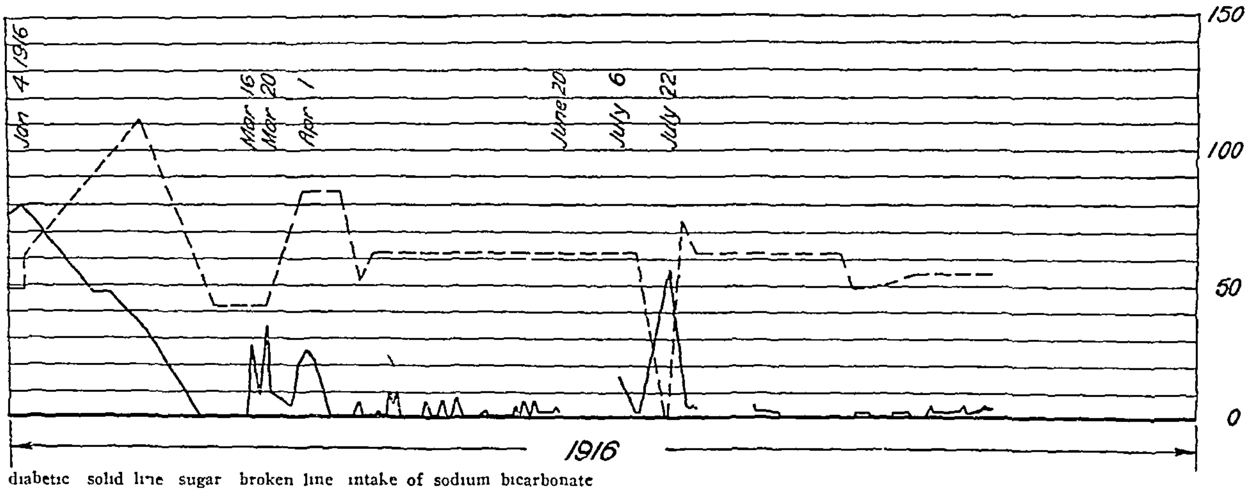
[15] Underhill and Baumann Jour Biol Chem 1916 **27** 151

The Influence of Large Doses of Sodium Bicarbonate on Sugar Excretion—At this period (Jan 4, 1916) of high sugar excretion, gradually increasing doses of sodium bicarbonate were given to a maximum of 120 gm per day This treatment resulted in *a gradual diminution of sugar output until the urine became sugar free* (see chart) The dosage of sodium bicarbonate was thereupon decreased at the rate of 7 gm per day until the intake amounted to 42 gm per day Under these conditions the urine remained sugar-free for a period of seventeen days (see chart), during which interval the food ingested was augmented to the point at which about 10 gm of carbohydrate in addition to that present in the previous strict diet were ingested daily Acetone and diacetic acid were *still present* but in greatly diminished amounts, and the urine was strongly alkaline in reaction The volume of urine voided daily varied between 2 and 3 liters

With the idea of determining the tolerance of the patient toward a large quantity of sugar, a portion of grapefruit was added to the diet The quantity of sugar ingested amounted to 26 gm As is apparent from the chart (March 16) an equivalent quantity of sugar promptly appeared in the urine but quickly fell to less than 10 gm March 20 a second sharp rise may be noted the sugar output being caused by *the patient breaking over his diet and eating* indiscriminately The third sharp rise (see chart, April 1) in the output of sugar is associated with a severe attack of bronchitis The patient was confined to his home for a period of thirty-one days during which it was deemed advisable to increase temporarily the intake of alkali This had as a result a drop in sugar excretion to the zero point From that period until June 20 the sugar output fluctuated from zero to 10 gm per day The break in the sugar curve represents a vacation period In the period just previous to the June vacation, no strenuous attempt was made to keep the urine sugar-free The larger figures represent either indiscretions in diet or are associated with particularly strenuous days in which nervous tension was unduly pronounced On his return from vacation in July (July 6), the sugar excretion was approximately 15 gm which by proper regulation of the diet quickly fell to 2 gm

The Influence of Alkali Withdrawal on Sugar Excretion—In order to determine the influence of the alkali therapy on the sugar excretion from a different point of view, the patient was maintained on a constant diet on which never more than 2 gm of sugar appeared in the urine, and the alkali was then gradually withdrawn As may be seen from the chart, *glycosuria steadily increased as the alkali was decreased, until at the period* (July 22) *when no alkali was ingested nearly 60 gm of sugar were excreted per day* During this interval the patient was obliged to lie down most of the time, owing to great weakness, and on one occasion had a "fainting spell" At the solicitation of the family the experiment was carried no further, *alkali was again administered, the diet remaining unchanged, and, as may be seen from the chart, the sugar excretion fell rapidly to the zero mark* The subject speedily regained his sense of strength and well being, which has been maintained to the present time (November 10)

The Degree of Acidosis of the Patient—During the autumn of 1916 the chart shows a slight upward tendency of sugar excretion This may be explained by the fact that the patient is receiving a relatively small alkali intake, 49 gm per day There is little doubt that with a larger daily ingestion of sodium bicarbonate the urine could be made sugar-free The main reason that the alkali intake has not been increased is that 49 gm of sodium bicarbonate just suffices to keep the urine near the point of neutrality When the alkali was entirely withdrawn a test was made to determine how much alkali was necessary in order to overcome the acidosis of the subject, that is, the amount of alkali sufficient to render the urine alkaline Ingested at seven intervals during the waking hours, 49 gm of sodium bicarbonate just yielded an alkaline urine This is the minimum amount necessary to keep the urine at the point at which it is either faintly alkaline or faintly acid to litmus When it is remembered that in normal man at most 15 gm of sodium bicarbonate are sufficient to render the urine alkaline, it is evident that in the present instance a severe acidosis is present Acetone and diacetic acid are always to be found in the urine, but not in large quantities



diabetic solid line sugar broken line intake of sodium bicarbonate

Body Weight—During the period of alkali administration *body weight of the subject has fluctuated between 124 and 135 pounds The attack of bronchitis referred to above* caused a loss of weight of about 10 pounds At present (November 10) the body weight is 131 pounds

Food Intake—Calculation of the food intake shows the patient to be receiving approximately from 15 to 18 gm of nitrogen and 2,400 calories

Method of Alkali Administration—Sodium bicarbonate dissolved in water is very likely to cause nausea and vomiting If the alkali is dissolved in a little water and ordinary carbonated water is added, the mixture may be drunk with no bad effects So far as can be discovered, the ingestion of large doses of sodium bicarbonate over a long period of time has caused no injury or untoward symptoms of any sort In order to keep a stream of alkali entering the tissues more or less constantly sodium bicarbonate is taken in seven equal doses at approximately equal periods during the waking hours The urine secreted during the night remains alkaline

THE INFLUENCE OF SODIUM BICARBONATE IN A MILD FORM OF DIABETES

The most striking effects of alkali administration in diabetes are encountered in the very severe cases, as might naturally be expected, because of the greater degree of acidosis. In patients with a well defined tolerance to carbohydrate, the influence of alkali treatment may be seen, however, and there is also some evidence of an increased tolerance under the treatment.

Case 2.—A Jewish woman aged 42, with a history of diabetes of several years' standing, for a period of at least two years had had her dietary arranged by me in such a manner that on a typical strict diabetic diet the urine became sugar-free. Acetone and diacetic acid were never present. With the addition of three thin slices of baker's bread (weighing approximately 15 gm each) the urinary sugar increased to between 2 and 3 gm. Four slices of bread during the day caused an output of between 18 and 21 gm of sugar.

Slowly increasing doses of sodium bicarbonate (up to 50 gm) on the strict diet plus three slices of bread maintained this patient sugar free for a period of two days at the end of which four slices of bread were given with an output of 5.4 gm of sugar. With five slices of bread the sugar excreted amounted to 6 gm. Six slices of bread caused a urinary sugar excretion of 6.8 gm—approximately one-third that usually put out on four slices of bread when no alkali was given. It is apparent from these data that the carbonate administration permitted a much greater tolerance than obtained when no alkali was given.

CONCLUSIONS

The ingestion of large doses of sodium bicarbonate has a marked influence in decreasing glycosuria in severe diabetes, and in maintaining the diabetic individual in a state of comparatively good health and vigor. This effect is ascribed to the neutralization of the exogenous and endogenous acid of the organism.

In mild diabetes there is evidence that carbohydrate tolerance may be significantly increased by large doses.

These conclusions are in harmony with experimental facts concerning the relation of acid-base equilibrium of the body to carbohydrate metabolism.

THE RELATIVE FREQUENCY OF THE VARIOUS CAUSES OF COMA*

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AND
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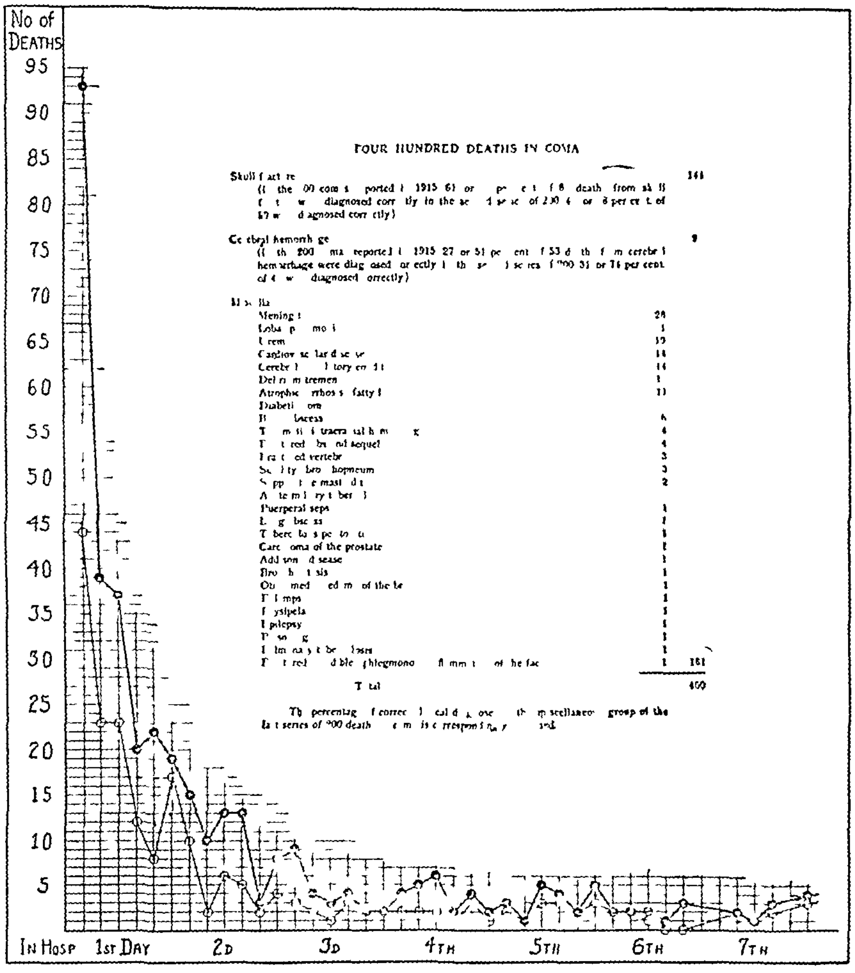
In 1915 we presented[1] the results of study of 200 deaths in coma, with special reference to the clinical diagnosis of uremia. During the past year we have been able to review the clinical records of an additional 200 persons dying in semiconsciousness or coma and, as in the first series, one of us (E R L) has examined all the bodies. In grouping these 400 deaths in coma, the possibility of aiding diagnosis of the various forms of coma, particularly in the practice of large hospitals receiving a great deal of so-called emergency work, has been kept in mind. We further believe that a presentation of the diagnosis efficiency of clinicians in the Cook County Hospital, and especially the improvement since the first report, will compare favorably with similar statistics from other large hospitals admitting many persons in some degree of coma.

As in our first consideration, we think the conditions are best represented by charts which take into account not only the number of deaths, but also the time allowed for clinical study and the number of correct diagnoses.



FOUR HUNDRED DEATHS IN COMA

Skull fracture		141
(Of the 200 comas reported in 1915 61 or [illegible] per cent of [illegible] deaths from skull fracture were diagnosed correctly; in the second series of 200 [illegible] or 8 per cent of 67 were diagnosed correctly)		
Cerebral hemorrhage		9
(Of the 200 comas reported in 1915 27 or 51 per cent of 53 deaths from cerebral hemorrhage were diagnosed correctly; in the second series of 200 31 or 76 per cent of [illegible] were diagnosed correctly)		
Miscellaneous		
Meningitis	28	
Lobar pneumonia	1	
Uremia	19	
Cardiovascular disease	14	
Cerebral [illegible] tory [illegible]	14	
Delirium tremens	1	
Atrophic cirrhosis, fatty liver	11	
Diabetic coma		
Brain abscess	6	
T[illegible] intracranial hem[illegible]	4	
[illegible] br[illegible] sequel	4	
Fractured vertebra	3	
[illegible] hopneum	3	
Suppurative mastoiditis	2	
Acute miliary tuberculosis		
Puerperal sepsis	1	
Lung abscess	1	
Tuberculous peritonitis	1	
Carcinoma of the prostate	1	
Addison's disease	1	
[illegible] thrombosis	1	
[illegible] of the [illegible]	1	
T[illegible]mps	1	
Erysipelas	1	
Epilepsy	1	
Poisoning	1	
[illegible]	1	
[illegible] phlegmonous inflammation of the face	1	181
Total		400

The percentage of correct clinical diagnoses [illegible] miscellaneous group of the last series of 200 deaths [illegible]

Chart 1.—Correct diagnoses in 400 deaths from coma: heavy line deaths; light line number correctly diagnosed. In this chart twenty one deaths in coma are not plotted; they occurred as follows: 6 on the eighth day, 3 on the ninth, 4 on the tenth, 1 on the eleventh, 1 on the twelfth, 1 on the thirteenth, 1 on the fourteenth, 1 on the seventeenth, 1 on the twenty second, 1 on the twenty eighth, and 1 on the thirty first day. The clinical diagnoses were correct in eleven of these.

In Chart 1, the upper heavy line represents the number of deaths per four hour period, and the lower light line, the number of each of these groups receiving correct clinical diagnoses. Thus, it can be seen, ninety-three died within four hours after entrance into the hospital, and of these, forty-four, or 47 3 per cent, were correctly diagnosed clinically Thirty-nine died between four and eight hours after admission, and twenty-three, or 58 9 per cent, of these received correct clinical diagnoses Similarly, 230 died within twenty-four hours after admission, and of these, 127, or 55 2 per cent, received correct clinical diagnoses Twenty-four died on the third day of observation, and of these thirteen, or 54 16 per cent, received correct clinical diagnoses

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* From the Cook County Hospital.

* A report made at the regular monthly staff meeting, April 13, 1916.

[1] Bissell, W. W., and LeCount, E. R.: A Consideration of the Relative Frequency of the Various Forms of Coma with Special Reference to Uremia, The Journal A. M. A., March 27, 1915, p. 1041.

The abrupt descent of both curves from the first four hours to the end of the third day is a most graphic expression of the high and rapid mortality of persons entering the Cook County Hospital in coma From the fourth to the thirty-first day, eighty-four died, and of these, forty-nine, or 58 33 per cent, were diagnosed correctly

The various causes of coma as determined by postmortem examination and the number of times each cause was found are tabulated in the center of the chart From analysis of this chart it seems reasonable to conclude that more than half of the persons entering the Cook County Hospital in coma die during the first twenty-four hours after admission, but few live longer than one week, and, in this series at least, the accuracy of the clinical diagnosis is little affected by the element of time

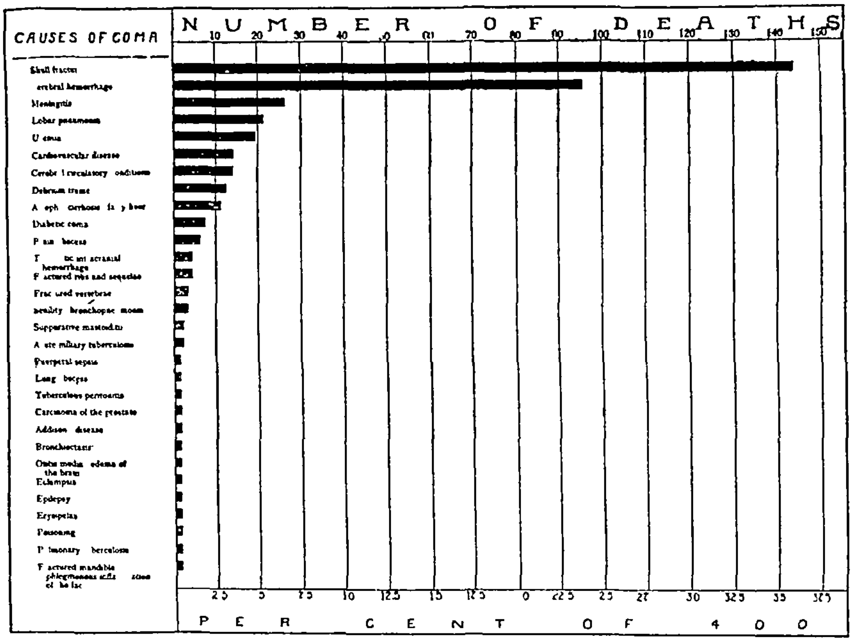

Chart 2 —Various causes of coma as determined by postmortem examination

In reading in Chart 1 the list of causes of coma with conditions which also produced death, it is noticeable that we have listed none of the common poisonings, such as the corrosives, illuminating gas or morphin Because either from history or obvious corrosion the vast majority of such persons enter the hospital with a diagnosis correctly made, we have omitted these instances of coma from consideration, and for like reasons we have not taken into account a rather large number of comas due to extensive and externally obvious injuries

In Chart 2 we have arranged in order of frequency the various causes of coma as determined by postmortem examination Reading from above downward, the lengths of the heavy black bars can be read in numbers, or, reading from below, in percentages of 400 Thus, 144, or 36 per cent, of these 400 persons entering the Cook County Hospital in coma which terminated fatally were comatose from skull fracture, ninety-five, or nearly 24 per cent, of these 400 from cerebral hemorrhage It is most interesting to note that less than 5 per cent of all these instances of coma were due to uremia, and it is similarly interesting to observe that, as a cause of coma, lobar pneumonia takes a position preceding uremia

It is also apparent that 239, or 59 75 per cent, of these deaths in coma were due to skull fracture or cerebral hemorrhage, and of these, 165, or 69 per cent, received correct clinical diagnoses The frequency with which skull fracture is observed with insignificant external injuries, and the common finding of bloody cerebrospinal fluid in persons comatose from spontaneous intracerebral hemorrhage lead us to believe that the diagnosis efficiency for skull fracture and cerebral hemorrhage is clinically very high

We wish to emphasize the value of such reviews as this to stimulate resident and attending members of staffs of large hospitals to make accurate, rapid clinical diagnosis

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Passing of Tubercle Bacillus —And finally, however large you may make the tuberculous population of a given community if you subtract, as preventable causes those cases born of the preventable contagious diseases, especially those specifically liable to be complicated by tuberculosis, those cases developed because of drug, drink, or other abuses, those developed as the result of unhygienic conditions and unsanitary surroundings, those developed because of food deficiency or irregularity or of faults of metabolism, those developed and spread by wilfulness, carelessness or ignorance of known cases, those spread from unknown cases, those contracted because of the lack of those elements of culture demanded by modern society, those contracted because of the lack of proper quarantine of active cases, and those contracted from infected milk or other food supply your tubercle will have petered out and passed away The few remaining cases for whom one of these preventable causes could not be found will be so small as to be negligible And if the reduction has been accomplished up to this point who is there to say that it cannot be entirely eradicated? Why not? Even more virulent diseases, more sturdy bacteria, have been eradicated

There was a time when such diseases as smallpox, cholera, plague and the like had far larger populations and far greater death rates than tuberculosis—and they are gone Because the tubercle bacilli never attack the robust or unreenforced, every stride in the improvement of hygienic conditions, every improvement in physical condition and physical development, and every stride forward in preventive medicine will limit the range of operation of the tubercle bacillus Who can still say that tuberculosis is not the most preventable, the least contagious, and the most amenable to cure?—H M Friedman, *Journal of the Outdoor Life*, December, 1916.

Medical College 2960

HEREDITARY DEFORMING CHONDRODYSPLASIA—MULTIPLE CARTILAGINOUS EXOSTOSES

A REVIEW OF THE AMERICAN LITERATURE AND REPORT OF TWELVE CASES [*]

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In the fall of 1914 a case of multiple cartilaginous exostoses, so called, appeared during my service at the Children s Hospital With the permission of Dr Lovett I investigated the case clinically and roentgenologically, and removed a strip of bone from across an affected epiphysis for pathologic study The results of this investigation were presented in an article[1] published in May, 1915

In reviewing the literature, I found that although the disease is generally considered rare, and textbooks in English give little or no place to it, more than 600 cases had been reported from all over the world, and about 350 articles had been written on the subject The American literature I found to be very scanty

As a logical sequence to my previous article, I proposed to discover if possible how frequent the condition really was in this country, and what its clinical and roentgenologic manifestations were Accordingly I present herewith (1) a review of cases hitherto reported in the United States, (2) a report of a series of personal cases, (3) observations as to the character and occurrence of the disease based on these cases, and (4) conclusions

REPORTED CASES

The first case reported in this country was by Gibney[2] In 1875 he showed a boy of 13 who presented the typical picture At 7 years he had been confined in bed for a long while with "acute rheumatism," and at 10 years he had recurring pain in his right hip Gibney[3] presented this patient again in 1879 At this time he showed several new exostoses, and some of those formerly present seemed to have increased in size

In 1876 in an article on the subject, Gibney[4] presented a family consisting of a Prussian of 34 who had many large irregular hyperostoses, with subluxation of one finger and left genu valgum Over some of the hyperostoses the skin was cicatrized, representing ulceration from friction The growths were said to have reached a maximum size at puberty since which time many were said to have decreased in size His father and brother were said to be affected, and his daughter of 11, son of 9, and daughter of 4 were presented as well defined cases This is the first family reported in this country, and it is interesting because in the first generation there is one person affected, in the second two, and in the third three

In 1889 Leidy[5] reported a case in an Irish girl of 25 who presented multiple bony tumors, those about the knee being unusually large, causing pain and interference in walking There is no statement concerning heredity

Wright,[6] in 1887, showed a boy of 11 presenting the typical picture

Davis,[7] in 1905, reported two cases, one a man of 53, no hereditary history ascertained, presenting typical knock knee, curved and shortened forearms with displacement of the carpi, subluxation of a finger, pes valgus, rosary and enlargement of the spines of the *seventh cervical and first and second thoracic* vertebrae He came under observation on account of suppuration of an exostosis of the femur This case is interesting because during a year, under the observation of Dr Davis, a small growth on the ramus of the left pubis diminished noticeably in size The second case was a child of 3, with rosary, knockknee, etc No family history was obtained

In the discussion of this paper, Dr H L Taylor reported a family in which the father was probably affected, a boy of 12, a girl of 10, and a boy of 8, definitely so A H Freiburg described a case in a man of 80, who was operated on for popliteal aneurysm caused by friction of an exostosis In this patient the family history went back three generations Dr D D Ashley reported a girl of 11 and a boy of 9 affected, with a history of the affection reaching back to include the mother, grandmother and great-grandmother

In 1907, Ochsner and Rothstein[8] reported an interesting case of intraspinal exostosis The patient was a man, aged 23, without known hereditary history, in whom the condition was noted at the age of 2, 108 exostoses were counted, including an unusual one on the left superior curved *line of the occiput* The patient stated that these exostoses grew at the same rate as he did until the age of 19, when they stopped At 14 he began to have incoordination of the lower extremities, which condition grew worse so that during the past year the upper extremities were involved and there was pain on the right side of the body on turning the head to the right Rothstein diagnosed an exostosis within the spinal canal on the right side, and at operation his diagnosis was confirmed and an intradural pediculated tumor, which was flattening the cord, was removed from the anterior aspect of the right lamina of the second cervical vertebra The operation was unfortunately followed by quadriplegia with loss of bladder and bowel function, from which condition the patient gradually improved, so that he was walking with crutches at the time of the report

Clark and Atwood,[9] the same year, in a series of interesting neurologic cases, reported one as "a case of multiple enchondroma, one of which is growing from the sella turcica, causing pressure on the pituitary body" The patient was a boy of 17 with spastic quadriplegia, the same one described later by Oberndorf

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[*] Read before the Section on Orthopedic Surgery at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[*] Because of lack of space this article is abbreviated in The Journal The complete article appears in the Transactions of the Section and in the author s reprints A copy of the latter will be sent by the author on request

[1] Ehrenfried Albert Multiple Cartilaginous Exostoses—Hereditary Deforming Chondrodysplasia The Journal A M A May 15 1915 p 1642

[2] Gibney V P Multiple Exostoses Med Rec, New York 1875 **10**, 300

[3] Gibney, V P Multiple Exostoses Med Rec New York 1879, **15** 589

[4] Gibney V P Hereditary Multiple Exostoses Am Jour Med Sc 1876 **72**, 73

[5] Leidy, Joseph Jr An Unique Case of Multiple Exostoses Tr Path Soc Philadelphia (1887 1891), 1891, **14**, 5 Univ Med Mag Philadelphia 1888 1889 **1**, 230

[6] Wright J W Multiple Asymmetrical Spongy Exostoses New York Med Jour 1887 **45**, 358

[7] Davis G G Multiple Cancellous Exostoses, Am Jour Orthop Surg 1905 1906 **3**, 234

[8] Ochsner E H, and Rothstein T Multiple Exostoses Including an Exostosis Within the Spinal Canal with Surgical and Neurological Observations Ann Surg 1907 **46** 608

[9] Clark L P and Atwood C E A Report of Cases of Landouzy Dejerine Myopathy (Congenital) Thomsen s Disease and Enchondroma of the Hypophysis New York Med Jour 1907 **86**, 97

Withington,[10] in 1907, showed an Italian, aged about 35, who was suffering from acute articular rheumatism, multiple exostoses were found on examination, and were said to have existed since early childhood No history of heredity was made

Oberndorf,[11] in 1910, described in some detail the case already reported by Clark and Atwood The boy was of German parentage, aged 19 years No history of heredity was noted, but the father and mother were second cousins The condition was first noted at 4 years, and the mother said that many growths had appeared and vanished spontaneously One rapidly growing tumor over the precordium was removed at the age of 11 by McBurney, and the pathologic diagnosis of enchondroma was made The boy suffered from acute rheumatism at the age of 12 He had a scoliosis with some apparent kyphosis and forty palpable masses The hands and feet were increased in size and the finger tips were blunt and spadelike, suggesting acromegaly Oberndorf considered this due to a growth in relation to the sella turcica causing pressure on the pituitary body For the past three years the patient had suffered from a marked syringomyelia, and some months after his coming under observation died of inanition, complicated by bedsores

Coon,[12] in 1912, reported the case of a boy of 15 without hereditary history He presented an atypical picture The deformities affected particularly the right leg and arm The left limbs showed mild bony changes on Roentgen examination, but were practically without deformity In the fingers of both hands, roentgenoscopy revealed chondromatous masses involving the metaphyseal ends of the phalanges, in the right forearm the shortening appeared in the radius, rather than in the ulna, where it usually occurs The lower end of the radius showed typical broadening and striation of the metaphyseal extremity with distortion of the epiphyseal line The same was true of the right shoulder, knee and ankle

Boggs,[13] in 1913, reported the case of a man, aged 23, who was said to have been born with bony tumors, and whose father had bony tumors Roentgenoscopy revealed the characteristic clinical picture, with a normal sella turcica The patient had been blind for about a year, and the legs had become weak eight months before he came under observation There was moderate double optic atrophy The thyroid gland was not made out The case was reported as one of multiple congenital osteochondromas with thyroid atrophy, degeneration in the acoustic and optic nerves, and muscular atrophy

In 1913, Vaughan[14] emphasized the hereditary nature of multiple exostoses

Carman and Fisher, in 1915,[15] reported the case of a man, aged 23, in whom no heredity was ascertained It was noticed at birth that the arms were thick at the elbows and wrists The bony tumors were not particularly noticeable until the age of 8, when they began to grow, and continued to increase parallel to skeletal development until about 22, when growth ceased He came under observation on account of an irritation abscess over an exostosis on the clavicle He was 5 feet 9 inches tall, and showed bony growths generally distributed, including the jaw, costochondral junction (rosary), and scapulae He had scoliosis, relative shortening of the left arm and leg, moderate flatfoot, synostosis and clubbing of fingers and toes, and asymmetry of the toes An exostosis within the pelvis was felt by rectal examination The forearms were exceedingly deformed and short, the right showing the typical deformity in moderate degree and the left showing an exceeding degree of hyperostosis at the lower end of the shafts of the radius and ulna, with the hand dislocated inward and the upper end of the radius dislocated outward The ulna being extremely short, the length of the relatively long radius was taken up by a spiral twist of the radius about the ulna

Percy, in 1915,[16] reported a case of a boy of 17 of stocky build, in whom the first tumor was noticed at 4 years, and who presented growths on the upper arms, knees and legs All the joints were enlarged, and the bones of the hands and feet were short, stubby and nodular On the inner aspect of the right arm was a cauliflower chondro-osteoma the size of a cocoanut, which had grown markedly during the past three years This was removed by operation The boy's grandfather, who was born in Holland, was said to have been affected with the disease, and Dr Percy investigated his descendants He found that these numbered 113, of whom 26 were affected, 73 not affected and 14 unknown Of those affected, 22 were males and 4 females Transmission through affected males and females was about in the relative proportion of those affected, but in two cases the disease was transmitted through unaffected females This family tree, which includes four generations, is the first tree worked out in this country, and deserves further serious study

In the discussion of Percy's paper, Bevan stated that there were many cases on record in which multiple ossifying enchondroma had caused a spinal cord lesion Ochsner stated that when animals have these enchondromas, a large proportion of the offspring have the same form of tumors M L Harris described a typical case with generally distributed tumors There was a large growth about the lumbosacral junction with paraplegia Operative removal did not relieve the paralysis Bedsores and gangrene developed, and the patient died

In 1915 I presented a review[1] of the subject based on the study of about 600 cases reported in over 300 articles, and the particular pathologic study of a section removed from an affected epiphysis in a growing child I stated the belief that the disease was a distinct clinical entity, characterized by (1) the occurrence of multiple, more or less symmetric cartilaginous and osteocartilaginous growths within and on the skeletal system, generally benign, and resulting from a disturbance in the proliferation and ossification of the bone-forming cartilage, (2) the occurrence of certain typical distortions and deformities of the skeleton, and (3) the demonstration of inheritance in a large proportion of cases To avoid the confusion which exists at the present time as the result of the multiplicity of terms by which the disease is known, I suggested the descriptive name of hereditary deforming chondrodysplasia The review included a consideration of the terminology, occurrence and distribution, heredity, pathology, etiology, symptoms and complications, and treatment

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[10] Withington C F A Case of Multiple Symmetrical Exostoses Boston Med and Surg Jour 1907 **156**, 200

[11] Oberndorf C P A Case of Multiple Exostoses Coupled with Syringomyelia, New York Med Jour 1910 **91**, 479

[12] Coon C E Dyschondroplasia Am Jour Orthop Surg May, 1912

[13] Boggs T R Multiple Congenital Osteochondromata with Degeneration of Cranial Nerves and Muscular Dystrophy Bull Johns Hopkins Hosp 1913 **24** 210

[14] Vaughan R T Multiple Exostoses A Hereditary Affection of the Bony Skeleton Tr Western Surg Assn St Louis 1913 abstr, The Journal A M A Jan 17 1914 p 231

[15] Carman R D and Fisher A O Multiple Congenital Osteochondromata Ann Surg 1915 **61**, 142

[16] Percy N M Multiple Chondro Osteoma Surg Gynec and Obst 1915 **20** 619

Ashhurst,[17] in 1916, reported a series of thirteen cases Two had previously been reported by Dr Davis, and two Dr Ashhurst had not seen but reported from hospital records The first patient was a girl, aged 4 years, with typical deformities, including subluxation of the right radial head Case 2 was a man of 20 who presented ulnar deviation of the carpi Case 3 was a negress of 11 who had a short left forearm and double pes valgus Case 4 was a boy of 17, in whom the left knee showed outward bowing and relative increase in length Cases 5 and 6 were two brothers of 15 and 13 years, a younger brother was said to be affected Case 7 was a boy of 14, who had paralysis of the left ulnar nerve evidently due to pressure of the bony mass in the neck In this boy the midpoint was half way between pubis and umbilicus Case 8 was a man of 30, in whom the exostoses were first recognized a year before, following an attack of rheumatism Dr Davis in this case removed an exostosis of the left femur which was pressing on the sciatic nerve Case 9 was a girl of 7, Cases 10 and 11 were the cases reported by Dr Davis, Case 12 was a boy of 16, and Case 13 a man of 34

Marshall,[18] in 1916, reported a case in a young woman This patient will be described later (Case 10) [19]

PERSONAL CASES

Case 1—*History*—Miss B T, white, aged 11, entered the Children's Hospital, Nov 6, 1914 She was born in Beverly, Mass Father a French Canadian Father, mother and six other children living and well Detailed family history not obtained She was an 8 months' baby, fourth child and very diminutive Had breast milk for nine months followed by cow's milk and general table diet She has always been a weak child Began to walk at 19 months Whooping cough the only disease of childhood The deformity of forearm was first noticed at 6 months, it has become more and more prominent with time The flatfoot has been noticed since the child began to walk

Local Patient stands with slight left dorsolumbar scoliosis, with both shoulders thrown forward, a mild degree of knock knee on each side and the feet everted She walks with a rather uncertain gait, throwing her weight on the inner side of the feet, especially on the right The face is symmetrical, and shows no deformities Motions at the right shoulder joint normal The outline of the right elbow is distorted The forearm can pronate, supinate, flex and extend normally, but the head of the radius is subluxed outward and is greatly increased in size over normal Muscle power is good however Joint motions are free and there are no contractures Both bones of the forearm are unusually short and to palpation feel thicker than normal At the wrist, motions are free There are no contractures and muscle power is good The styloid process of the ulna is, however, at least 1 inch above the styloid of the radius and there is a distinct gap below the end of the ulna and the wrist joint The lower ends of both bones are oversize and there is a slight inward bowing of the ulna at about its lower third The left arm shows free motions at the shoulder, good muscle power and no contractures At the elbow the outline of the joint is distorted The head of the radius is subluxed externally and posteriorly, and is greatly increased in size The motions of flexion and extension, pronation and supination are free, and there are no contractures The forearm shows considerable bowing of both bones At the wrist the ulna is short, the styloid process being at least 1 inch above the radial styloid, the lower ends of both ulna and radius are increased in size Muscle power is good in all groups, and there are no contractures The hands are rather small, and the fists cannot be more than half clenched, on account of the obstruction offered by the enlarged extremities of phalanges and metacarpals At both hips the trochanters are on Nelaton's line, joint motions are free and muscle power good At the knees muscle power is good There are no contractures, and joint motions are free At the right ankle the internal malleolus is unduly prominent and the whole foot is held everted, joint motions are free, and muscle power good in all groups There are no contractures The left ankle is held somewhat in the same position as the right The internal malleolus is abnormally prominent There are no contractures and muscle power is good in all groups Reflexes Knee jerks present on both sides No clonus, Babinski, nor Oppenheim Right arm acromion to internal condyle 9⅛ inches Left, 9¼ inches

Left leg length, 28⅛ inches Circumference thigh, 12¾ inches, calf, 8¾ inches

Right leg length, 28¼ inches Circumference thigh, 13 inches, calf 8¾ inches

Roentgenologic Examination Cranium negative, sella turcica of normal size Thorax free, except for slight irregularities in lower ribs Marked lateral curve in lumbar spine Slight irregularities about sacro-iliac articulations Both ilia show a peculiar series of radiating striations about the crests Clavicles and scapulae are free, and the humeral heads show slight thickening The lower third of the shafts of the humeri show some deviation from normal contour The circumference is lessened, and the bone is bent The humeral condyles show mottling The ulnae are relatively short, bowed concave forward, and at the lower end present a large irregular bulbous enlargement, in which the epiphyseal line is lost The radii are straight, with the upper end dislocated outward and upward, so as to form a marked projection at the level of the outer condyle The lower end presents a similar irregular cystic like enlargement, but the epiphysis is present intact, though relatively small The entire carpal articulation is carried on the radius The distal ends of all the metacarpals and the proximal ends of the first two rows of phalanges show the globular striated enlargements referred to The femoral heads are squat and thick with flat epiphyses and prominent trochanters There is mild genu valgum in both legs, and the diaphyseal extremities of tibiae and fibulae are widened and irregularly striated, the fibulae are relatively short, so as to destroy the ankle mortise, and the tarsus is offset outward to create an extreme pes valgus The heads of the metatarsals, and the proximal metaphyseal extremities of the first phalanges show the globular vacuolated enlargements already seen on the fingers On the left foot the first and third digits show comparatively slight involvement, and are accordingly relatively longer than the other digits

The deformities in this case consist in a scoliosis, shortening and bowing of the forearms, ulnar deviation of the hands, dislocation of the heads of the radii, moderate knock knee extreme tarsal valgus, irregularity in length of toes, and shortness of stature There are no exostoses, few hyperostoses and the deformities are symmetrical

The roentgenograms were taken at the Children's Hospital

Case 2—*History*—Miss J W, white, aged 21, bookkeeper, was born in Boston of Jewish parents The father was born in Hungary, a tailor, of ordinary height He died of old age in Boston, at 82 His father died of tuberculosis No knowledge of deformities in family Mother born in Austria, living and well at 46 of ordinary height Her father living, 82 years old Mother died of old age at 75 No knowledge of deformities One brother died of hydrocephalus at 1½ years No other brothers or sisters The patient had measles in childhood, and nervous indigestion for several years Rheu matic pains in joints whenever exposed to a draft, or at a change of weather, for years but never so as to be confined to bed Menstruation at 14

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[17] Ashhurst A P C Multiple Cartilaginous Exostoses (Hereditary Deforming Chondrodysplasia) with Notes of Nine Hitherto Unpublished Cases, Ann Surg 1915 **63** 167

[18] Marshall H W A Case of Multiple Cartilaginous Exostoses Am Jour Orthop Surg 1916 **14**, 346

[19] Since this paper was written A V Moschcowitz (Ann Surg 1916 **63**, 749) has reported a typical case in a man of 31 in whom an osteochondrome of the left femur of considerable size projected into the popliteal space, producing cyanosis and coldness of the extremity through interference with the blood supply

Physical Examination —I first saw her, May 7, 1915 I found her a bright looking girl of excellent mentality She had, in fact, won some distinction during her high school course She had been working steadily as a bookkeeper during the past three years The nausea had continued, but it was relieved by eating She had had no benefit from treatment and was convinced that it was purely nervous She had occasional twinges of pain in the joints Wrists are weak, particularly the left, so that at times she can hardly lift a sheet of paper She walks only with arch supports

She is short in stature, measuring 4 feet 8½ inches The middle point is half way between pubes and umbilicus The arms are noticeably short, the right reaching a third way down the thigh, and the left being shorter still Measurements from tip of acromion to the tip of middle finger are right 23½, left, 22¼ Musculature is good Both arms hyperextend about 15 degrees at the elbow Both wrists are loose in adduction, the left to a higher degree than the right, and just above the carpus the radius can be palpated on the inner as well as the outer aspect Fists can be clenched tightly with the appearance of one or two small double knuckles Wrists not greatly enlarged Patient says that she formerly had a large mass on the ribs on the right side, but this disappeared four years ago, after she began to wear corsets It is not to be felt now

Moderate degree of knock knee Large rough lumps to be felt above and below both knees There are lumps and irregularities on the lower ends of both tibiae and fibulae Slight degree of flatfoot, but on the whole the ankle mortise is well maintained

Roentgenologic Examination Cranium negative, normal sella turcica Thorax shows a slight caving in of the ribs, especially on the left, enlargement of the costochondral junctions (rosary), and a tear-drop exostosis on the lower border of the fifth left rib, one third of the way around from behind No scoliosis Some irregularity about sacro-iliac articulations Pelvis shows very wide ilia, and unusually thick pubes and ischia, with a relatively small superior strait Clavicles thick, with enlargement at outer ends Scapulae not remarkable Upper ends of humeri show irregular enlargement of diaphyseal extremities, with longitudinal striation About one third of the way down the shaft of the humerus on both arms is a moderate enlargement, from which project rounded stalactite exostoses Elbow joints appear normal The ulnae are relatively short In a plate taken at the age of 6 the lower ends of the ulnae are irregularly enlarged, but do not reach to within an inch of the carpal articulation The epiphysis cannot be distinguished The lower ends of the radii are somewhat enlarged and irregular, particularly the right, the epiphyses are clear cut, but small In the recent plates (taken at 18 years) the irregularities are much less the bones showing a denser structure, with a straighter outline There is no evidence of epiphyseal line The right ulna ends in a point, which articulates laterally with the radius, and on the left it resembles a spear head There is a fine retrodirected exostosis on the outer aspect of the lower end of both radii The metacarpals and phalanges in the 6 year plate show irregular enlargement and vacuolation of the diaphyseal ends most marked in the metacarpals There is a spur on the left forefinger, the right middle finger is disproportionately long and the distal phalanx subluxed inward The later plate shows the same conditions except that the bone is denser and the outlines less irregular, and the epiphyses have disappeared in moderate globular striated enlargements at the ends of the bones At the hips, the femoral necks are short, and very much increased in width, the outlines are irregular and the trochanters prominent The shafts are of normal contour down to the lower ends, which are squared striated longitudinally, and present hooklike exostoses, directed upward The same lengthening and squaring of the diaphyseal extremity is apparent in the upper end of the tibiae but here the pair of stalactite exostoses are directed downward The upper ends of the fibulae show marked irregular globular enlargement, cystic in appearance, much larger on the left There is moderate genu valgum The shafts of fibulae and tibiae are clear Their lower ends are broadened, and there is a long irregular pseudarthrosis between them The fibulae are relatively short, but the axis of motion of the ankle joint is not disturbed In none of the late plates is there evidence of an epiphysis

The deformities in this case consist in disproportionate shortness of stature, deformity of thorax, rosary, shortening and bowing of forearms, ulnar deviation of the hands, subluxation and asymmetry of fingers, moderate genu valgum, moderate pes valgus, enlargement of the diaphyseal extremities at shoulder, knee and ankle, a few exostoses, and a chondromatous enlargement of the upper end of the fibula The occurrence is symmetrical, although the degree varies slightly

The early plate was taken at the Children's Hospital, the later plates at the Boston City Hospital

CASE 3 —*History* —Mr F R J, aged 56, white, janitor, first seen May 11, 1915, in the orthopedic outpatient department of the Massachusetts General Hospital, by courtesy of Drs Brackett and Low, was born in Vermont, of American parents Father died in 1910 at 82, mother died in 1915 at 87 Family short in stature Father and mother both of same height as patient One sister died in infancy One brother living and well, of normal height Grandparents American born No history of deformities or exostoses

The patient had measles and pertussis as a child Denies venereal diseases, does not use alcohol At 7 or 8 years outgrowths and deformities were first noticed Taken to local physician who said that patient had exostoses and would probably be a cripple At 14 an extensive crop appeared growing "as fast as he grew," some being painful or tender at times Went under treatment with a "quack doctor for three years, he stopped the pain and stopped the bunches from increasing in size Since then he has had no new bunches, no increase in size, no disappearances

Had occasional growing pains or rheumatism when young, at 19 inflammatory rheumatism, in bed one week

Has always been able to do heavy work, when younger could run upstairs with a bag of corn over his back No trouble with walking No bunch is large enough to interfere with the free action of any joint

Physical Examination —The patient is a genial, intelligent-looking American Height 5 feet, 2 inches Middle point is 3 inches above pubes Finger tips reach to point short of midthigh

Upper arms not remarkable Lower arm short and curved No dislocation of radial head No club hand, although entire articulation is carried on radius Hand is stubby, no limitation in closure, but both fourth fingers are short, the same length as little fingers

Stands with considerable knok knee, greater on the right, approximating 45 degrees The right knee, probably in part as the result of the injury already noted, allows of lateral mobility of about 20 degrees Both knees very large, with palpable exostoses Lower legs fibulae short, with dislocation valgus, more marked on right No limitation of motion at knee or ankle Good function knees and ankles, except at right knee, as noted

Roentgenologic Examination I have plates only of the arms and legs The shoulders show the characteristic striated elongation of the upper end of the humerus The ulnae are short, curved, and articulate with the inner surface of the radius The lower ends of ulna and radius are irregularly enlarged, and of thinner texture than the shafts The knees show marked valgus, elongation and squaring of the diaphyseal ends, with irregular exostoses at the corners, projecting upward on the femur and downward on the tibia The upper ends of the fibula are enlarged and thinned, and run by direct fusion into the tibiae The lower ends of the tibia and fibula are distorted, on the right there is fusion of the two bones On the left there is a pseudarthrosis The fibulae are short, there is a fair ankle mortise, but the axis of motion of the astragalus is oblique, rather than horizontal

The deformities in this case are disproportionate shortness of stature, shortening and curvation of forearms, mild ulnar deviation of the hands, shortness and asymmetry of fingers, knock knee pes valgus, hyperostoses and exostoses about joints The deformities are symmetrical

The plates were taken at the Boston City Hospital [20]

Case 4—*History*—Mrs E H H, aged 20, white, first seen, May 25, 1915, at her home in Somerville, through the courtesy of Drs Binney and Kimpton was born in Montreal, Canada Father was an Englishman, from Sussex He was about 5 feet 8 inches in height, and is not known to have had any deformity He died in 1910 at 48 Mother was a French Canadian, born in Montreal, of normal height, and is not known to have had any deformity She died in 1915 at the Boston City Hospital The family consisted of eleven children three boys and eight girls, of whom the patient is the fifth One boy and one girl died in infancy The others are living and well, and are said to present no deformity This patient is the only one who is distinctly below normal height

Physical Examination—Patient is 5 feet 5½ inches in height Middle point is just above pubes The right arm is 25 inches and the left arm is 24¾ inches The outer ends of the clavicles are rough, and on the right there is a sharp knob The forearms are short, somewhat curved right, and sharp curve left Wrists enlarged, but no disability Can close fists Middle fingers long

Moderate knock knee, some pes valgus, but feet seem good from point of view of function Ankles enlarged Large knob on the outer side of femur above the left knee

Roentgenologic Examination Cranium negative, sella turcica normal in size Thorax shows a very pronounced caving in of the ribs on both sides There is an irregular enlargement of several of the ribs, particularly the first four on the left and the first two on the right There is a synostosis between the third and fourth, left The spine shows a double scoliosis The sacro-iliac joint and pelvis are clear The clavicles are thick and enlarged at both extremities The scapulae show small irregularities, upper end of humeri show small united epiphyses On the left the contour is normal, but there are several fine exostoses, and on the right the shaft near the upper end shows irregular cystic enlargement with small exostoses The lower halves of the shaft are free and the elbow joint is normal The forearms are short with a very marked relative shortening of the ulnae The radius is curved and its lower end irregularly enlarged There is no epiphyseal line apparent The articular surface of the radius stands at an obliquity of about 45 degrees to the shaft making a potential manus vara, with a very weak wrist The fingers show globular enlargement at the metacarpophalangeal articulations and the first interphalangeal articulations particularly The middle fingers of both hands are relatively long The upper ends of the femur are thick, with short thickened necks The shafts are free down to the lower diaphyseal extremities, which are square, elongated, striated longitudinally and present several exostoses directed upward The upper diaphyseal extremities of the tibia and fibula are similarly squared and elongated and present exostoses directed downward The lower diaphyseal extremities are elongated and present pseudarthroses The ulnae are relatively short, and the tarsi are in valgus

The deformities in this case are disproportionate shortness of stature scoliosis, deformity of thorax and ribs, shortness and curvation of the forearms, ulnar deviation of the hands knock knee pes valgus, asymmetry of fingers and hyperostoses and exostoses about joints The deformities are symmetrical There is no evidence of epiphyseal line, except at the upper ends of the humeri

The plates were taken at the Boston City Hospital

Case 9—*History*—E L, boy, aged 12 white, seen May 22, 1916, at my office, was born in Cambridge, Mass, of Anglo-American parents Father well at the age of 42, height 5 feet 6 inches printer, born in Rockland, Maine He has three brothers and one sister all below medium height except the oldest The oldest has one child His father died of paralysis in the fifties, and his mother is living and well, in the sixties No history of deformity

Mother living and well at the age of 48, born in Rockland, Maine, 5 feet 6 inches in height Her father was a sea captain, above medium height He wore a corset for some "spinal trouble," and died in 1885 of Bright's disease at 53 Her mother was a delicate woman who died at 52 in 1890 of gastric cancer She was above medium height Her one sister is living and well No history of deformity She was married at the age of 17 No miscarriages, has lost no children One other child beside patient, a girl of 15, living and well, without deformity

Roentgenologic Examination—I have plates of the arm and knees of this patient at the age of 8, and plates of the entire skeleton taken at the present age of 12 The thorax shows no abnormality, spine slight scoliosis Pelvis shows marked irregularity about the epiphyses as well as considerable thickening of bone Clavicles show marked thickening of the inner ends, particularly on the right The scapulae show small spurs and irregularities, particularly about the head and neck The humeri are somewhat thickened and dense at the upper ends, with wavy outline, and the epiphyses are partly united Elbows some irregularity in bony structure and in outline about condyle of humerus The epiphyses are distorted in the early plate and show signs of partial union in the more recent picture The ulna on the left is markedly shortened and somewhat curved It ends in a point, which does not take part in the carpal articulation This point is capped by a small triangular epiphysis The radius is curved and thickened at the lower end, and the epiphysis is distorted The right forearm presents a practically straight ulna with slight irregularity in outline at the lower end, and a small epiphysis not united The radius is slightly curved, both epiphyses show partial union The fingers show striation at the metaphyseal ends, with slight disproportionate lengthening of the right middle finger The hips present marked thickening of the neck with irregular contour in the region of the lesser trochanter and partial union of the epiphysis The knees show squaring of the metaphyseal ends with striation and spur formation at the corners a process which is carried further in the more recent plate, the striated portion extending further up on the shaft and the spurs being increased in size There is slight knock knee, and the more recent plates show a partial union of the epiphysis The upper ends of the fibulae are vacuolated and the lower ends are irregular and vacuolated, and in contact with an irregular surface on the outer side of the tibia The shafts of tibiae and fibulae are clean cut The fibulae are relatively short The feet show calcaneal spurs and striation and irregularity of outline at the metaphyseal extremities of metatarsals and to a less degree on the phalanges

The deformities in this case are as follows moderate valgus at the left elbow, shortening and curvation of the forearm greater on the left, ulnar deviation of the wrists, particularly the left small hands with asymmetry in length of fingers on the right, moderate genu valgum, moderate pes valgus, disproportionate shortness in stature, and juxta-epiphyseal hyperostoses and exostoses

The plates were made at the Children's Hospital

GENERAL OBSERVATIONS

I have found in the American literature fourteen articles on this disease and four recorded case reports, the earliest dated 1875 The inevitable deduction seems to be that the condition is a rare one in this country The cases formally reported in these records number twenty-nine, but if the cases mentioned in discussion are added, as well as the relatives stated as being affected, the total is brought up to seventy-one Some of these, however, were not residents of the United States

But in comparison with these figures I can say that in a period of about a year in Boston I have unearthed the series of twelve cases herewith presented, and a few months ago Ashhurst reported a series of thirteen cases from Philadelphia Accordingly, it is easy to believe that with more widespread knowledge of the condition, an interested search will bring to light many cases in other communities, and raise the disease out of the ranks of uninteresting rarities

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[20] September 26 this patient employed as an elevator man in a Boston hotel suffered a severe crushing injury of his right leg above the ankle I performed an amputation from which he is recovering uneventfully The specimen is being studied at the pathologic laboratory of the Harvard Medical School

As to the sex occurrence, adding my cases to the seventy-one mentioned above, there are seventy-three in which the sex is given Of these fifty-five are male and eighteen female, just about in the proportion of 3 1 This agrees with the figures which I stated in my previous article

The question of nationality is interesting, but it is a complicated one to work out in this country, where so many racial stocks are involved Many authors make no statement whatsoever on this point Dr Percy's family of twenty-six patients were of Dutch birth or descent, five others are given as being of German birth or descent, and there were two of Irish, and one each of Italian, Austrian, English, and French-Canadian birth or race One had an English father and French-Canadian mother The Austrian was a Jewess, and is one of the very few reported The negress reported by Dr Ashhurst is the only one I have found in the literature, although the disease is known to affect others than Caucasians Of the remaining forty-five some are stated as being native-born of Anglo-American stock, and the rest were probably for the most part of the same origin I previously stated that the German cases predominated in the literature (60 per cent), next followed the French (27 per cent) and English (8 per cent) All other countries together showed only 5 per cent This American series is interesting for the predominance of Anglo-Americans, and the occurrence in a negress and a Jewess

Heredity has been a hard matter to study in connection with the disease, because the country is young and the population mixed and to a large degree migratory Many of the case reports have been casual, and make no mention of this subject It happens that we now have several families authoritatively worked out in this country The largest is that of Percy, with twenty-six affected in four generations, then comes Gibney's with four in two generations, mine with three in two generations, Boggs with father and son, and Ashhurst with two, and probably three, brothers In addition there have been reported in discussion a girl with two brothers and probable father (Taylor), a brother and sister, with mother, grandmother, and great-grandmother (Ashley), and three generations (Freiburg) Accepting these, we may say that inheritance or familial occurrence was shown in fifty cases In the remaining thirty-two, it is stated in twelve that no evidence of heredity was obtained

The characteristics of the disease in the cases here reported have agreed well with my previous description of the disease The affection is distinctly one of the period of skeletal growth It has been usually first noticed in infancy or early childhood, the manifestations have increased with skeletal growth, and ceased at skeletal maturity Chondromatous tumors may increase rapidly in size, and regress, either before or after maturity, but the bony spurs, usually capped with cartilage, grow slowly and are undoubtedly fixed at skeletal maturity They may fracture, and the fractured portion absorb, or the bursa which frequently covers them may become inflamed from irritation, and form an abscess or subside, or a spur may become infected and carious It is unlikely that the bony elements regress in adults, although Davis records a case in which this apparently occurred under his observation in a man of 53

Disproportionate shortness of stature was constant in the seven of my cases in which it was measured for, and Ashhurst reports it as a finding in one case I believe that it will be found practically constant in well marked examples of the disease Generally, the cases have shown irregular juxta-epiphyseal hyperostoses, particularly marked at knee, hip, shoulder, ankle and wrist The lower end of the femur and the upper end of the tibia have shown a characteristic squaring-off, with spurs at the corners, running upward from the femur, and downward from the tibia These spurs should not be confused with the developmental exostoses about the knee, which are similar, but are purely local, and bear no definite relationship to this disease These spurs may increase in size and change their shape in the period of growth The enlargements at the metaphyseal ends increase in length with skeletal growth, in the younger patients they are thin in density, and striated or mottled in appearance, the older cases are striated longitudinally, and are dense in structure, with heavy more or less wavy outline

The lower end of the ulna, occasionally of the radius, and both ends of the fibula characteristically show a thin bubble-like vacuolation, suggesting cysts The bone becomes denser and the outline more regular in the older patients In the majority of cases the ulna and fibula are disproportionately short in relation to the radius or tibia The ulna is likely to end in a point articulating with the radius on its mesial aspect, but not partaking in the carpal articulation This gives rise to a club hand, or a weak wrist with ulnar deviation (potential manu vara) The relatively excessive length of the radius is also taken up in a bowing of the shaft, sometimes with a dislocation upward of its head, and rarely in a spiral twist about the ulna (case of Carman and Fisher) The relative shortening of the fibula disturbs the mortise at the ankle joint, and causes a structural valgus The tibia is a strong bone, with its ends firmly set into joints, and it does not become distorted from the shortness of its companion, as does the radius The fibula frequently becomes structurally united with the tibia at one or both extremities, sometimes, instead, there is a long irregular pseudarthrosis, particularly at the lower end

The fingers and toes show the same type of bulbous juxta-epiphyseal enlargement, vacuolated in the younger patients, becoming denser and more regular in outline later In marked cases these form double knuckles, and prevent complete closure of the fist Frequently fingers or toes are irregular as to length, one being longer or shorter than it should proportionately be There seems to be demonstrable correspondence between the amount of bony involvement and the extent of retardation in growth Generally, the hands are small and chubby Fingers may be crooked or a phalanx subluxed, from an irregular growth

The cranium is generally not involved, although in one case a spur on the left superior curved line of the occiput is cited (Ochsner and Rothstein) There may be growths on the jaw, or the mastoids and other prominences may be roughened and enlarged One case in this series was diagnosed as exostosis in the sella turcica, and Virchow found at necropsy that the occu rence of small spurs on the basilar process at the spheno-occipital junction was common The spine frequently shows a lateral curve, and occasionally spurs on the bodies or spinous process are demonstrable by roentgenoscopy Clavicles and scapulae frequently show spurs, thickening, or irregularities in outline, which, if subcutaneous, may cause ulceration of the skin The ribs often show enlargement at the costochondral junction (rosary), occasionally a spur, or a broadening of and synostosis between ribs There may be irregularities about the head and neck of the ribs, and occasionally the thorax shows a marked caving in of both sides

Growths at the lumbosacral junction and about the sacro-iliac joint are frequently demonstrable The pelvic bones are likely to be thickened, lessening the diameter of the superior strait, the crest may show striation, or there may be spurs on or within the crest The upper end of the femur is enlarged and irregular, and the neck is short and thick This may rarely interfere with function Knock knee in mild degree is common, and in excessive degree not unusual

Pediculated osteochondroma may arise from any affected portion of the skeleton, particularly from the juxta-epiphyseal hyperostoses They may grow rapidly in size, even after the cessation of skeletal growth The shafts of the long bones are likely to be free from irregularities or spurs, these grouping themselves at the metaphyseal ends It may be said categorically that the bony irregularities mark the progress of a disturbed or pathologic ossification at the epiphyseal line The epiphyses of the bones most affected usually show some distortion in the roentgenogram, and at the wrist this may be very marked The union of the epiphysis with the shaft occurs abnormally early, as a rule

The skeletal disturbances and malformations are generally speaking symmetrical for the two sides of the body Usually minor differences may be apparent, in degree of distortion, but it is rare to have any one side suffer a great deal and the other be only slightly affected This occurred, however, in one case, that described by Coon This patient resembles those of the small series discussed by Ollier, Wittek and Frangenheim, and in several other ways he departs from the rule I consider this case, however, to come within my definition of the disease

This series has brought out several cases representing the rarer complications of the affection Freiburg, in the discussion of Davis' paper, reported a case of popliteal aneurysm caused by friction of a bony spur against the artery There are only seven other cases of this sort on record

Nerve complications have been unusually frequent These include a case with syringomyelia and acromegalic symptoms, probably from a spur in the sella turcica (Oberndorf), cord symptoms from a pediculated intraspinal osteoma (Ochsner and Rothstein) and from a growth at the lumbosacral junction (Harris), both operated on, and peripheral manifestations, (1) in the ulnar nerve from pressure by a bony mass in the neck, and (2) in the sciatic from pressure of an exostosis (Ashhurst) The case of Boggs' had degeneration of the acoustic and optic nerves, muscular dystrophy and thyroid atrophy

There have been in this series no cases of secondary malignant chondroma In my previous paper I stated that this occurred in about 5 per cent of the reported cases

CONCLUSIONS

Hereditary deforming chondrodysplasia can no longer be considered a rare affection in this country The disease is a distinct clinical entity, whose manifestations are now well defined The work which has been done on its pathology points definitely to a disturbance in the bone-forming cartilage as the underlying cause The hereditary nature of the disorder, which has been pretty well demonstrated, gives it an individuality which makes investigation interesting The disease should be given wider recognition and study, not only for its importance, but also because it opens up the whole field of obscure congenital skeletal affections

ABSTRACT OF DISCUSSION

Dr Albert H Freiberg Cincinnati No one can discuss this subject to any great extent because so little is known of the true nature of this condition I can simply tell you the circumstances under which I saw a case very early in my surgical career, when, as assistant to a general surgeon, we operated on a popliteal aneurysm which was produced by fracture of the pedicle of one of these exostoses in the popliteal space The case was similar in all respects to the cases Dr Ehrenfried has shown us, and there was a very distinct history of transmission through the male side of the family for a number of generations

Dr Albert Ehrenfried, Boston This disease is not a rarity I have found seventy-one cases recorded in this country most of them in the past few years Ashhurst has just reported thirteen cases from Philadelphia, and the twelve in my series were collected in Boston in less than eighteen months so it cannot be very uncommon The disease is a distinct clinical entity Exostoses play a very small role, they were considered characteristic in the days when we had to depend on palpation for diagnosis, but now the Roentgen ray shows the whole bony picture The pathology of the affection has been cleared up to a considerable degree My own work has demonstrated a dysplasia of the intermediary cartilage as a basic element in the disease and the chief source of the skeletal deformities, and has corroborated the persistence of islands of cartilage as the probable source of the hyperostoses and osteochondromas The matter of heredity I have just touched on It is a fascinating subject, and when thoroughly worked out will undoubtedly assist us to a proper understanding of the whole group of congenital skeletal affections of which we now know so little

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Artificial Milk —Vice Consul Hamilton C Claiborne, at Bradford, England (*Commerce Reports,* Jan 11, 1917) reports that application has been made for a patent on the process of making an artificial milk from peanuts, soya beans, sugar, water and mineral salts, which is said to be wholesome and inexpensive The method of making the milk, as taken from the Yorkshire *Observer,* is as follows In 200 pints of pure water at 80 C are dissolved 400 grams of potassium phosphate, or the equivalent amount of sodium phosphate, sufficient sugar is added to give 4 5 per cent to the finished milk, and 40 pounds of meal prepared from one of the above nuts, blanched The solution is boiled in a steam-jacketed pan, then subjected to the operation of a vacuum pan and finally treated with a culture of lactic bacteria until the required acidity is obtained It is afterward pasteurized at 60 and 70 C for at least twenty minutes cooled and stirred while 0 05 to 0 11 per cent of citric acid is added The milk so produced is said to be condensed and sold in tins or dried to a powder and sold in bottles It may be given a certain percentage of cream, it is said, by the addition of coconut or one of the other tasteless nut fats, the fat being added when in the vacuum pan It may be cultured by the addition of lactic bacteria to give a table cream or a soured mass for making into cheese

COMPRESSION PARALYSIS OF POTT'S DISEASE IN ADULTS*

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In reviewing my own experience relative to compression paralysis of Pott's disease in adults, I have been impressed by the frequency of its occurrence, of the severity of the symptoms, and the mortality. The general picture of Pott's paraplegia in adults, compared with that usually seen in children, justifies a discussion of the problem which is distinctive in many regards. To approach this subject it is necessary to quote data not only obtained from the records of my own service, but also from other services at Cook County Hospital.

In seventy-five cases of adult Pott's disease, examined and treated at this hospital from January, 1914, to May, 1916, between the ages of 19 and 62 years, paraplegia occurred in twenty-four cases, and of these the known number of deaths was sixteen. The termination in the remaining eight cases is unknown. Surgical procedure, such as osteoplasty or laminectomy, was performed in thirteen of the twenty-four cases at some period in the course of Pott's disease. Postmortems were held in seven cases, of which five had compression paralysis.

Unfortunately a full analysis of my series of cases of Pott's disease is impossible on account of the incomplete records of the cases; nevertheless, they warrant a definite opinion that pressure paralysis of the cord is relatively frequent in adults. That this complication of Pott's disease should be of frequent occurrence ought not to be surprising, considering the immediate proximity of the cord to the site of the disease.

There are two factors to be considered in compression of the spinal cord in tuberculous spine disease: first, pressure from tuberculous granulation tissue which occurs mostly in children, and second, pressure from intraspinal abscess, usually seen in adults. Though other factors have been prominently mentioned, such as alteration in the position of the vertebrae, producing an angled projection of the spinous process, and protruding sequestrums at the site of the kyphos as a sequence of vertebral destruction, they should not be seriously considered. As to the angled projection, the caliber of the spinal cord is not narrowed in the anterior-posterior direction, as is generally supposed, and sequestrums are improbable.

In adults, compression of the spinal cord and nerve roots is most frequently the result of intraspinal abscess, although occasionally due entirely to granulation tissue. It is not exceeding the limit of probability to state not only that intraspinal abscess leads to paralysis, but also that the pressure will usually be protracted and tend to produce severe injury to the cord. Eventually the abscess may make its way out of the spinal canal into the deep tissues, though without corresponding relief of the symptoms. In exceptional cases, however, the paralytic symptoms may disappear if the pressure has existed only for a short time and has been relieved by the migration of the abscess outside of the vertebral canal.

Intraspinal abscesses are interpreted in roentgenograms as irregular, dark, wavy shadows surrounding apparently destroyed vertebrae. On the roentgenograms of patients with tuberculous spines, available for examination, intraspinal abscesses were observed in eighteen. Of this number fifteen had clinical symptoms of compression paralysis; whether or not the other three cases developed paralysis is unknown. In two paralytic patients with no characteristic symptoms of tuberculous spine disease and in which the roentgenograms did not show either vertebral bone destruction or shadows indicating abscess formation, the diagnosis of Pott's disease with intraspinal abscess was made only after postmortem examination. Five paraplegic patients went to postmortem, and intraspinal abscesses were found in all.

In children the majority of cases of Pott's paraplegia are due to pressure from inflammatory changes in the dura mater, the result of extension of the tuberculous process into the vertebral canal. This produces a disturbance of function without setting up a destructive or degenerative process. Only occasionally does an intraspinal abscess occur. These observations are based on (1) the examination of roentgenograms of tuberculous spines in children, which seldom show shadows indicating intraspinal abscesses, and (2) the fact that children afflicted with Pott's paraplegia when treated by recumbency on a Bradford frame, with or without traction, generally recover.

That recumbency can influence ultimate recovery in Pott's paraplegia where there has been severe and protracted pressure with consequent injury to the cord is improbable. In my opinion, restoration of function following recumbency ensues only when the stress has been moderate, as from tuberculous granulation tissue. Therefore, when recovery follows compression paralysis of Pott's disease, either in children or in adults, the lesion must generally be considered as having been a tuberculous granulation tissue rather than an intraspinal abscess. Of the twenty-four patients afflicted with Pott's paraplegia, due to intraspinal abscess, not one complete recovery has been recorded; generally death has resulted; but in those cases which, perchance, have not proved fatal, the degenerative changes in the cord were so great that a permanent paralysis remains. However, one patient (Case 3) partially recovered.

The treatment of so persistent an affection as Pott's paraplegia, the result of intraspinal abscess, has been without favorable effect. In the routine treatment of Pott's disease, I have operated both by the method of Albee and Hibbs, but neither has made any noticeable impression on the paralysis. Laminectomy, too, has been tried without securing results. In fact, where laminectomy was performed on four patients, death followed within a short period.

Postmortem examination in the five patients previously mentioned revealed total destruction of one or more vertebrae with abscess formation. The abscess communicated through the space formerly occupied by the destroyed bodies of the vertebrae, compressing the spinal cord. The dura mater was enormously thickened, markedly infiltrated and covered by yellowish, caseous material and occasionally by soft granulation tissue masses; the inner surface was smooth. The spinal cord was hyperemic in the region of the compression, and was completely severed in three cases.

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* Read before the Section on Orthopedic Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

In one case it was compressed from side to side Pulmonary tuberculosis was the primary cause of death in four cases

The following cases are selected to substantiate my observations of compression paralysis of Pott's disease, and also to introduce phases of the subject not hitherto discussed in the text of this paper

REPORT OF CASES

Case 1—W C, man, aged 56 years, admitted to the medical service of Cook County Hospital, June 24, 1914, complained chiefly of pain in the left side of the chest for the past two weeks, and during this time cough developed which gradually grew worse

The lungs gave a distinct friction rub in the left side, and a few rales could be heard Tubercle bacilli were found in great numbers, reflexes were normal

Aug 7, 1914, the patient complained of a beginning weakness in the legs Three weeks later he could not walk without support At this time he had a steppage gait, exaggerated knee jerks and ankle clonus on the left side No deformity of the spine nor typical symptoms of Pott's disease were present Roentgenograms showed destructive lesion of the third, fourth and fifth dorsal vertebrae and a shadow denoting abscess formation

Sept 14, 1914, he complained of pain in both legs The knee jerks were markedly exaggerated, Babinski was present and there was incontinence of urine, etc He was transferred to the orthopedic department, and from there referred back to the ward for pulmonary tuberculosis, because he was not considered an orthopedic case

He died, Oct 11, 1914, and a necropsy showed caseous tuberculosis of the tracheobronchial lymph nodes, apical pulmonary tuberculosis, necrosis of the fifth and sixth dorsal vertebrae and a tuberculous abscess communicating through these vertebrae, pressing on the dura mater Microscopic examination of the spinal cord was not made

Case 2—H H, man, aged 22, entered the neurologic department of Cook County Hospital, Jan 18, 1915 complaining of pain, numbness, heaviness and stiffness in both lower extremities, and also difficulty in walking Seven years previous he had tuberculosis of the cervical region of the spine, but he has been without any discomfort up to one year ago, when the foregoing symptoms appeared

Muscle power is good in the upper extremities, but decreased in the lower, both lower extremities are spastic, the right more than the left, tendon reflexes markedly exaggerated, Babinski is present and ankle clonus increased There is a small kyphos in the region of the eleventh dorsal vertebra

Roentgenograms show bone destruction of the lower dorsal and first lumbar vertebrae, but no apparent shadow indicating abscess formation

The diagnosis is compression myelitis of Pott's disease

Feb 20, 1916 laminectomy was performed and the patient died about two weeks later No postmortem was held

Case 3—M S man, aged 20, admitted to my service at Cook County Hospital, May 31, 1915, as a transfer from the tuberculosis ward, stated that he had been coughing more or less for about one year Six months ago he became aware of a small deformity in the dorsal region of the spine which had increased in size He suffered no particular discomfort other than the inability to bend the spine freely In the past four months he noticed a gradual difficulty in walking—a sense of heaviness and stiffness in the legs

The gait is slow, with a stiffness and dragging of the feet, tendon reflexes are exaggerated, there is loss of muscular power, and loss of cremasteric and abdominal reflexes, Babinski is present and ankle clonus increased There is a small kyphos at about the seventh to the ninth dorsal vertebrae, and impaired resonance of the left upper lobe and the right lower lobe, together with a few subcrepitant rales

Roentgenograms show collapsed bodies of the eighth and ninth dorsal vertebrae and a very classical shadow around the seventh to the tenth dorsal vertebrae indicating cold abscess

The diagnosis is tuberculous spine with beginning paraplegia and incipient pulmonary tuberculosis

June 15, 1915, the Albee operation was performed

Dec 1, 1916, the condition on discharge to Oak Forest Infirmary was about the same as mentioned above

June 6, 1916, the patient returned to Cook County Hospital for examination He walked with a quick, firm step, the tendon reflexes were markedly exaggerated, Babinski was present and ankle clonus increased

Roentgenograms showed a shadow surrounding the seventh to the tenth dorsal vertebrae indicating a cold abscess

Case 4—M M, woman, aged 31 years, admitted to Cook County Hospital, April 23, 1915, complained of parasthesia in legs and feet, she was unable to use the lower extremities, and also there was incontinence of urine and feces The paraplegia began eight months before with sensation of tingling, numbness and a "dead feeling" which steadily increased Previous to this time she had been well

There was complete paralysis in the lower limbs, spastic in type All reflexes were exaggerated and Babinski positive on both sides Sensory disturbances were limited to the lower half of the body up to the region of the umbilicus, running in a circular line around the body, there was kyphos in the region of the third and fourth vertebrae Bladder and rectal disturbances were marked There were trophic sacral bedsores

Roentgenograms showed marked bone degeneration involving the fourth to the twelfth dorsal vertebrae and also a very definite shadow opposite the fourth to the eighth dorsal vertebrae, indicating cold abscess

The diagnosis was tuberculous spine disease with paraplegia

Patient died, May 22, 1915, and necropsy revealed a cold abscess the size of the fist in the region of the third to the fifth dorsal vertebrae projecting anteriorly into the chest cavity The sac of the abscess was thick and on opening a cheesy, yellow tuberculous pus exuded The bodies of the third, fourth, fifth and sixth vertebrae were destroyed, through which the abscess sac compressed the spinal cord to the extent of almost complete severance The dura mater was markedly infiltrated—a peripachymeningitis—in the region opposite the lower part of the cord and cauda equina The spinal cord was curved on itself in the upper dorsal region Microscopically the gray matter was broken up in separate patches irregularly scattered over the surface, so-called heterotopic changes which are considered to be artificial Above and below the focus of softening there were found ascending and descending degeneration In the posterior and lateral columns were circumscribed foci of softening surrounded by some glia tissue

Case 5—E K, man aged 22, entered the neurologic service of Cook County Hospital June 15, 1915, with the following history About two weeks previous he became aware of a difficulty in getting out of bed, for the next three or four days he could manage to get up and around to a slight extent, but if he tried to move fast he would fall At the present time he is unable to walk and has slight pains in the shoulder and back Otherwise the history is negative

In the left supraclavicular space and just in front of the right trapezius muscle, apparently connected with it, is a soft, painless, freely movable tumor about the size of a small hen's egg, patient states that this tumor appeared about five days previous to his inability to walk On the left pectoralis major muscle, near its origin, is a soft, distinct painless tumor extending from the second to the fifth rib the size of a man's palm, which has been present for about two months No fluctuation is obtainable Below this tumor is a small, painless, fluctuating one about 1½ inches in diameter from which a brownish, yellowish fluid was aspirated The tendon reflexes and exaggerated Babinski, Gordon and Oppenheim are present Anesthesia is complete in the lower limbs up to the level of the eleventh dorsal vertebra, from the seventh to the eleventh dorsal vertebrae there is hypesthesia, pain, heat and cold touch are lost in this region, there is apparent lack of control of the sphincter muscles There is deformity of the spine

The luetin test proved negative The Wassermann blood test was positive, while the Wassermann spinal fluid test, made ten days later, proved negative Roentgenograms showed no destructive changes in the vertebrae nor a shadow indicating abscess formation

The diagnosis of myelitis (traumatic or compression) was made

The patient finally died, Dec 3, 1915 Necropsy showed miliary tuberculosis of both lungs, fibrocaseous tuberculosis of the tracheobronchial lymph glands, and fatty degeneration and passive hyperemia of the liver A tuberculous abscess, about 4 cm in diameter, was bulging from the fifth and sixth dorsal vertebrae, the bodies of which were completely destroyed On opening the vertebral canal there was a tuberculous, cheesy mass surrounding the dura mater opposite the fifth and sixth dorsal vertebrae The dura mater over the dorsal and lumbar region was found enormously thickened and covered with caseous and soft granulation tissue masses On opening the dura mater, the inner surface was smooth, but hyperemic, the cord too was hyperemic Microscopically the lower cervical region of the cord showed a patch of softening occupying the posterior horns and part of the posterior columns The axons were found swollen and broken up in small fragments, while the hyalin was in the form of lumps, drops or droplets The glia showed the so-called ameboid transformation In addition there were present the usual findings of ascending and descending degeneration

CASE 6—M O, woman, aged 25 years, entered my service at Cook County Hospital, July 3, 1915, as a transfer from the neurologic service Six months before she complained of pain in the abdomen followed by numbness and tingling in both legs One month later she lost complete power in the lower limbs About two months afterward an operation (laminectomy) was performed

Both legs lie extended and immobile, patellar reflexes, ankle clonus and Babinski are absent There is a scar over the region of the middle and dorsal vertebrae as from recent operation There is no apparent kyphos Sitting up increases the pain referred to the abdomen There is incontinence of urine, there are trophic ulcers over the sacrum and some dry rales over the right chest anteriorly

Roentgenograms show destruction of the tenth and eleventh dorsal vertebrae, and also a very definite shadow in the region of the seventh to the eleventh dorsal vertebrae indicating cold abscess

The Wassermann test was negative

The diagnosis was tuberculosis of the spine with paraplegia and pulmonary tuberculosis

Necropsy revealed a cold abscess about the size of a lemon along the ventral aspect of the dorsal vertebrae and communicating through the space formerly occupied by the bodies of the tenth, eleventh and twelfth vertebrae, which were completely destroyed The anterior and lateral portion of the seventh and eighth dorsal vertebrae were roughened The dura mater was thickened and covered by cheesy material, the inner surface was smooth The spinal cord was seen to be entirely severed at this level There were fibrocaseous ulcerative tuberculosis of the lungs, fatty degeneration of the liver and kidneys, trophic ulcers, etc

CASE 7—M T, woman, aged 25, entered my service at the Cook County Hospital, July 26, 1915, with a history of tuberculous spine disease of two years' duration for which she had been treated About three weeks previous to her entrance to the hospital her legs became weak and finally she was unable to move them She also suffered from incontinence of urine

There are typical symptoms of compression myelitis, and a kyphos in the upper as well as in the lower dorsal region of the spine Roentgenograms show apparent necrosis of the bodies of the fourth, fifth, sixth, seventh and twelfth dorsal and first lumbar vertebrae, and also a shadow in the region of the middle to the lower dorsal vertebrae, denoting abscess formation

The diagnosis is tuberculous spine disease with paraplegia

Dec 15 1915, necropsy revealed a focus of encapsulated, fibrous, caseous tuberculosis in the apex of the right upper lobe of the lung, bilateral fibrous adhesive pleuritis, marked bilateral disseminated bronchopneumonia, between the third and fourth dorsal vertebrae, there was a possible partial dislocation of the spine, that is, there was a necrosis of the bodies of the second, third and fourth dorsal vertebrae, and between the third and fourth, this necrosis was so marked that the normal intervertebral attachments were loosened to permit of marked abnormal mobility The bodies of these bones were, so to speak, collapsed on each other In opening the iliopsoas group of muscles on either side, there was a large quantity of yellowish, cottage cheese-like material which had excavated a cavity in these muscles approximately 4 by 18 cm There were sinuses leading from the upper end of these cold abscess cavities to the region of the twelfth dorsal and the first lumbar vertebrae The bodies of the seventh, eighth, ninth, tenth, eleventh and twelfth and the first lumbar were necrosed, of softened consistency, and yellow Between the twelfth dorsal and the first lumbar there was so much necrosis that here, too, the bodies had collapsed to make the angular deformity described in the lumbodorsal region On removal of the spinal cord there was a marked narrowing of the spinal canal in the upper dorsal region adjacent to the third and fourth dorsal vertebrae This narrowing was so marked as to have caused a definite marked narrowing of the adjacent spinal cord The dura mater in this region was greatly thickened, and on its exterior surface had a granular appearance and yellow color as that found in the adjacent bone In the lumbodorsal region, there was no narrowing in the spinal canal The dura mater at this point, however, was greatly thickened, and there was some dependent edema of the leptomeninges There were no adhesions between the leptomeninges and the dura mater in any part of the cord The lumbodorsal bone necrosis was at the level of and below the beginning of the cauda Between the dura and the bodies of the lower dorsal vertebrae, there was an infiltration of cheesy material This infiltration is an extension from the necrosed dorsal and first lumbar vertebrae The deformity in the upper dorsal region has been produced by a slight collapse of the bodies of the third and fourth vertebrae, the deformity not being great, the collapse is not great The necrosis of the arches of these vertebrae is so great that the narrowing of the spinal canal is in the lateral rather than in the anteroposterior diameter This encroachment on the lumen of the spinal canal is due to an infiltration of the dura with caseous material and the consequent fibrous infiltration of that membrane

Microscopically the spinal cord gave the typical picture of so called diffused myelitis, that is, the cord had the Swiss cheese appearance, numerous vacuoles, swollen axons broken up myelin and the so-called ameboid transformation of glia The vessels showed marked infiltration of the adventitial lymphatic spaces In addition there were present signs of secondary degeneration

SUMMARY

Compression myelitis may be the first clinical sign of an unsuspected Pott's disease, often unmasked by roentgenograms The severity of the compression is correspondingly shown by the intensity of the clinical phenomena

Intraspinal abscess is the dominant factor in subjecting the spinal cord to pressure, borne out by laboratory examinations and postmortem findings At first the pressure may not make any appreciable alteration in the nerve element, but sooner or later there is severe damage to the cord resulting in primary and secondary degeneration, in time actual necrosis and severing of the cord may occur as already recorded It therefore follows that the paraplegia will be complete and permanent, though occasionally it may be but partial As a rule, death may be anticipated—generally from pulmonary tuberculosis It cannot be denied, however that complete recovery may take place even after the paralysis has existed for a long period of time But in this connection a second factor must be considered in the mechanism of compression, namely, tuberculous granulation tissue most commonly occurring in children, which invades the vertebral canal, and a moderate pressure is manifestly enough to excite functional disturbance without necessarily having an actual mechanical destruction of the nervous elements This fact is of practical importance, as it explains the cause of recovery, which occurs by absorption of the tuberculous granulation tissue

No reliance can be placed on operative procedure Where laminectomy has afforded relief, it has been due to the accidental evacuation of the abscess, it is a serious operation and the immediate mortality is large

ABSTRACT OF DISCUSSION

Dr C B Francisco, Kansas City, Mo Formerly we were taught that Pott's paraplegia was, as a rule, the result of bony pressure It is now generally considered that the pressure is due either to granulation tissue, abscess formation or an extension of the process to the meninges In children I believe that the pressure is usually the result of granulation tissue, and that recovery is the rule Occasionally a child will not recover completely Recently I had a necropsy on a child who had had very efficient treatment for ten years, it had started off with the paralysis early in the disease, and had been continuously paralyzed, walking, at times, with considerable difficulty In that case we found a direct extension to the meninges (that is, an infiltration due to extension of the process), but these cases, I believe, are very rare There is seldom bony pressure in children, if ever In adults, it has been my observation that a case of tuberculosis of the spine developing paraplegia is going to continue to have signs and symptoms of the paraplegia Whether the original pressure is due to abscess formation or meningeal involvement, it is maintained sufficiently long to produce destruction of the cord structures and removal of the pressure then does no good therefore it is useless to do a laminectomy These cases will continue to have exaggerated reflexes and considerable difficulty It is rather rare, I believe, to see a case that improves as much as the one Dr Jacobs reports, in which the patient became able to walk very well, but still had the reflexes exaggerated

Dr J T Rugh, Philadelphia My experience rather leads me to feel that the prognosis in adults depends very much on the involvements or complications in other parts of the body If the patient does not have any pulmonary lesion or any active lesion in other parts of the body, the prognosis of the spinal condition is better A year or so ago, I had a case of paralysis of about a year's standing, in the Philadelphia General Hospital As a last resort, and because of inability to control the patient as he was, I placed a bone-graft in the spine Six months later, he met me in the corridor walking around with a cane It is now two years since the graft was inserted and he is now driving a dray in the city I have been able to duplicate that result in several other patients with disease of a similar type, in which there was no complication Those of my patients who have not recovered or have shown no improvement have usually died of complications, pulmonary, renal, or whatever they might be

Dr A L Fisher, San Francisco There ought to be a complete neurologic examination in all these cases as a routine For the last year we have been making not only the examination of the motor nerves and reflexes, but also of sensibility tactile sensation, cold and heat sensations, etc Although the results are not yet sufficient to draw any conclusions I have seen some evidence that there are in some instances disturbances of sensation before any evidence of motor impairment is shown

Dr Reginald H Sayre New York I agree with Dr Rugh that it is the lesion in some other part of the body that generally proves fatal in these cases, and my personal experience has been that a much larger number recover with good function than would seem to be the history with the patients whom most of the other gentlemen have seen I have under treatment at present three adults who were paralyzed for periods of from six to eighteen months They had both sphincters paralyzed, and in two cases there were bedsores These patients have practically recovered Two of them are supporting themselves The other patient has so far recovered as to be able to move around the ward with difficulty, but she has improved so much within the last six months that I think she will make a good recovery ultimately She was a mass of bedsores when she first came under my observation, and a diagnosis of transverse myelitis had been made, Pott's disease not being suspected Nothing had been done, but with traction and hyperextension in bed, she began to recover very soon She has slowly increased in her capability of looking after herself, and is, I believe, on the way to recovery In most of the fatal cases that I have seen, the pressure was in the cervical region I have seen several that went to a fatal termination, and there was marked meningitis at the time of death—the cerebral meninges being involved as well as those of the cord

Dr F J Gaenslen Milwaukee, Wis I want to report a procedure that I used in two instances in which the paralysis came on suddenly, and in which the condition would probably have terminated fatally otherwise The first thing I did was a laminectomy, splitting the spines as you would in an Albee operation The advantages of that are that when you close up the wound, you have a very firm line of union In addition to the laminectomy, I put in a tibial graft over the laminectomized portion of the spine In one instance, I removed the laminae of the fourth, fifth and sixth cervical, and in the other three laminae in the dorsolumbar region

Dr James T Watkins, San Francisco I want to report progress in a case belonging to the group described by Dr Jacobs The patient was a young woman with a complete paraplegia and multiple sinuses pointing in her back low down In the hope of inducing these abscesses to discharge elsewhere and so enable me to get a clean back to operate on, I had her put on an inclined plane My hopes were realized In time she developed sinuses in each groin and those in the back healed up Shortly afterward I went off service and Dr Sherman took the case over He did a laminectomy and removed a large tuberculoma from the neural canal The outcome to date is most gratifying It is less than six months since the operation and she already walks with assurance

Dr Edward S Hatch, New Orleans I agree with Dr Rugh that if they do not have other complications these adult patients do well I see many adult negroes come to the Charity Hospital with paraplegia or great weakness, and in the cases in which there are no other complications, the prognosis is good I have one man who was absolutely paralyzed, but who could get around a little in three months and is steadily improving It is a great mistake to say that we cannot do anything for these patients

Dr Albert H Freiberg, Cincinnati There is very little difference of opinion as to the correctness of the general considerations which Dr Jacobs has placed before us At the same time, I question whether we may applaud all that he has said with reference to these cases, whether in child or in adult The demonstration of an abscess around the spinal column in a roentgenogram in a case of paraplegia does not prove that the abscess stands in direct relation to the paraplegia Neither is it possible to be quite so definite as to what is going to happen as the result of conservative treatment in child or adult The proof cannot be seen in the roentgenogram, but in the conduct of the case What is important is that we should first use adequate mechanical means for placing the spine in a properly corrected position and for maintaining an exact immobilization with comfort to the patient and for a sufficient length of time to be able to judge, by the patient's behavior afterward, whether he is improving or not If he is not, we are not accomplishing what we are after, and then the question of some other kind of intervention comes up This is as true with reference to the child as to the adult, but the difference between the two classes of cases lies in the fact that improvement is more likely and more rapid in the child than in the adult For these cases it is my custom to use the Lorenz plaster bed and not the Bradford frame for immobilization By this means I can secure what we call hyperextension, but which it would be better to describe as a corrected position, and, in addition, I hope, a greater degree of immobilization This appliance is always under control and enables one to see that the patient receives proper care of the skin Our experience has been most gratifying in the treatment of these cases I may have been more fortunate than most We are going through this experience with some cases now The ultimate fact to be looked for is continuous improvement, even though slow So long as that is going on, I feel that we are moving in the right direction

Dr C M Jacobs, Chicago I do not deny that some patients get well, but what I have tried to bring out is that when this occurs the pathologic lesion is a tuberculous granulation tissue rather than an intraspinal abscess We know that most children with Pott's paraplegia get well, on the other hand, my records show that out of twenty-four adult cases, sixteen were known to end fatally Children with Pott s paraplegia are placed on a Bradford frame, with or without traction, and as already stated they usually get well The roentgenograms in these cases do not show a shadow indicating abscess When the roentgenograms show abscess formation there is more or less permanent paralysis At the Home for Crippled Children, I have two patients with Pott's disease who have been paralyzed for the past two years I have tried in every way to modify the condition by different methods—particularly with rest, but without success The roentgenograms show a shadow which I have diagnosed as an intraspinal abscess According to my observation, Pott's paraplegia in adults, due to intraspinal abscess, is usually followed by complications such as pulmonary tuberculosis, bronchopneumonia or tuberculous meningitis Dr Sayre did not state whether roentgenograms were taken of his cases and if so whether a shadow was shown indicating abscess formation

Dr Sayre In both of my cases I believe that there was an abscess present, because, after the disappearance of the paraplegia, abscesses showed themselves—in one case, in the spine, and in the other, in the groin These abscesses were opened and washed out, and disappeared

Dr Hibbs These were intraspinal abscesses, not ordinary abscesses?

Dr Sayre I believe that these abscesses had their origin in the spinal canal as the result of a process going on in the vertebra and elsewhere in the canal They exerted enough pressure to cause paraplegia Then before they were done they became extraspinal abscesses, and, with relief of pressure in the canal, the paralysis disappeared This does not occur in all cases, but did in these

NEURITIS AND PARALYSIS AS A COMPLICATION OF THE INTENSIVE PASTEUR TREATMENT

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Remlinger,[1] Stimson,[2] Simon,[3] Hasseltine[4] and Fielder,[5] in a summary of the literature with a report of their personal cases, show the sum total of paralyses following the Pasteur treatment to be 142, with twenty-four deaths With the additional cases described in Table 1, the number of paralyses is increased to 150, without taking into consideration the seven cases reported as neuritis Attention is particularly called to the two cases of optic neuritis heretofore not described in the literature With the etiology of this complication very much in doubt, it is best that one call attention to the seemingly important factors of the cases in this series

TABLE 1—PARALYSES

Case	Diagnosis in Biting Animal Based on	Onset Days After		Site of Involvement	Time of Recovery
	Negri Bodies or Inoculation Observed Symptoms Suspicious History	Bite	Beginning Treatment		
1	+	21	17	Unilateral facial paralysis	Traces 9 months later
2	Treatment taken as a precautionary measure		28	Partial paralysis legs considerable diarrhea present	Six weeks
3	+ No bite supposed cuts on hands	21	15	Paralysis legs partial paralysis arms and face sphincters	Partial recovery 3 weeks later
4	+	24	17	Paralysis both legs cerebrospinal fluid withdrawn and inoculated subdurally into guinea pigs with negative results	Several weeks later
5	+	18	13	Bilateral facial paralysis with involvement of lower limbs sphincters and to a smaller extent the arms prodromal symptoms of extreme nausea and severe local reactions with rise of temperature	Traces 16 months later
6	Dog well treatment taken as a precautionary measure and self administered	12	10	Paralysis both legs and sphincters simultaneous with the beginning of involvement of nervous system there was a flaring up of all previous local reactions with a sharp rise in temperature	Traces 7 months later
7*	Pricked on thumb with needle while administering the Pasteur treatment		17	Paralysis of legs	Several months
8	+		17	Paralysis of legs and sphincters severe local reactions after each injection the paralysis following unusually severe ones no rise of temperature	Reported slowly improving four months later

* Physician

STUDY OF CASES

1 The percentage of involvement of the central nervous system including the cases of neuritis in the series of intensive Pasteur treatments in which these cases occurred, numbering approximately 1,600, was 0 9 per cent This percentage is in excess of what is usually reported, and would lead one to believe that many cases go unrecognized Considering the paralyses alone, the incidence was 1 200 in those treated in this series

2 No children were affected It is of interest to note that Cases 6 and 7 were in physicians

3 The paralysis occured in one person (Case 2) who was not bitten Again, it occurred in one person

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[1] Remlinger Accidents paralytiques au cours du traitement antirabique Ann de l Inst Pasteur 1905 **19**, 625

[2] Stimson A M Facts and Problems of Rabies Bull 65 Hyg Lab U S P H S 1910

[3] Simon Ueber Lahmungen im Verlauf der Tollwutschutzimpfung, Centralbl f Bakteriol Orig 1913 **68**, 72

[4] Hasseltine H E Paralysis During Antirabic Treatment Pub Health Rep Oct 24 1913 p 2220 ibid July 30 1915 p 2226

[5] Fielder F S Paralysis During Pasteur Antirabic Treatment, The Journal A M A June 3 1916 p 1769

(Case 6) who was bitten, but not by an animal which was rabid

4 Cases 4, 5 and 6 were treated with the same set of virus with fifteen others This virus was checked culturally, aerobically and anaerobically, with sterile results From these cases one would be led to believe that there was some idiosyncrasy on the part of the ones affected *An idiosyncrasy not being a complete* explanation, one would consider the symptoms presented as a result of fixed virus infection

5 In Cases 2, 5 and 6, observed personally, one would be apt to judge the patients as having such temperaments as to predispose to some involvement of the nervous system

6 In Cases 2, 3, 4, 5, 6, 7 and 8, the condition was apparently a myelitis, yet in others the peripheral nerves seemed most involved Facial paralysis alone was noted in one case (Case 1) There is no doubt that bulbar symptoms were present in Case 5 The involvement may be of a selected nature, as shown by Cases 11 and 13

7 In Case 3, though the treatment was discontinued and resumed with no ulterior results, I am convinced from observations of Cases 5 and 6 and the alarming symptoms presented that the continuation of the treatment was bad judgment There must be a border line, so to speak The latter cases around the seventh day of treatment presented definite prodromal symptoms of nausea and temperature In Case 6 the treatment was discontinued for two days, with a return of the patient's condition to normal The resuming of the treatment brought on an immediate and much aggravated return of the initial symptoms coincident with the appearance of the paralysis

TABLE 2—NEURITIDES

Case	Diagnosis in Biting Animal Based on Negri Bodies or Inoculation	Onset Days After		Site of Involvement	Time of Recovery
		Bite	Beginning Treatment		
9	+	24	31	Spasmodic contraction muscles side of neck	Several weeks
10	+	48	45	Spasmodic contraction muscles side of neck	Several weeks
11	+	23	19	Double optic neuritis followed by complete blindness of a few days duration	7 weeks
12	+	34	30	Severe pains left eye later affecting side of face, occurring at intervals	2 weeks
13	+	21	17	Double optic neuritis followed by complete blindness with gradual recovery of vision	Several weeks
14	+			Continuous vomiting	Immediate
15	+	21*	18*	Extreme numbness of fingers and toes with some extension to arms and legs	Several weeks

* Contact

8 One can easily grant that the local reactions observed during the course of the Pasteur treatment are an indication of the individual's hypersusceptibility to foreign proteins Then the flaring up of these reactions simultaneously with the beginning of the symptoms of involvement of the nervous system observed in Case 6, and to a lesser degree in Case 8, is most interesting These cases readily support the anaphylactic theory

9 The shortest incubation period of the paralyses was ten days In one instance it was twelve days, in one thirteen days, in one fifteen days, in three seventeen days, and in one twenty-eight days

COMMENT

There is no doubt that in some persons to whom the intensive Pasteur treatment is administered, 0 9 per cent in our series, taking into consideration the cases of neuritides presented there occurs some involvement of the nervous system, with possible serious results Therefore the intensive Pasteur treatment is not without danger, and warning should be given accordingly

This involvement may be of the nature of a definite myelitis which is most probably rabic The short incubation period as demonstrated in the cases reported here seems characteristic of fixed virus, yet it must be remembered that comparatively as short an incubation period is seen in cases of human rabies,[6] as a result of street virus infection, overwhelming in every instance No single etiologic factor can explain every case, as in Case 6 in my series The patient was not bitten by a rabid animal Either theory—an idiosyncrasy anaphylaxis, or fixed virus—is applicable to this case Though continuation of the Pasteur treatment in some of the cases of paralyses may not appreciably affect the course of the disease, in others it may be fraught with grave danger, as illustrated by Case 6

THE HECHT-WEINBERG-GRADWOHL TEST IN THE DIAGNOSIS OF SYPHILIS

ITS SUPERIORITY OVER THE WASSERMANN TEST IN UNTREATED AND TREATED SYPHILITICS*

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It has taken about one decade to introduce the Wassermann test into the field of diagnosis It is now recognized as one of the most valuable laboratory aids that has yet been brought into routine use It is so nearly specific in differentiating between syphilitic and nonsyphilitic conditions that for all practical purposes we may conclude that a positive Wassermann means syphilis

This reaction is usually performed by competent workers along the lines originally laid down by Wassermann and the so-called Berlin school of serology As a pupil and follower of that school I have insisted on the carrying out of a technic similar in all details to that originally advocated by Wassermann, with the exception of replacing the watery extracts of antigenic substance by one or more of the much superior alcoholic preparations Using, therefore, the so-called "classical Wassermann' with the proper alcoholic antigen, cholesterinized or not as the case may be, I have seen every phase of the development of this reaction, and have watched it from the standpoint, not only of the laboratory, but also with the interest of a clinical observer in syphilis With this experience I have long since come to recognize in this test a splendid method of syphilitic diagnosis and at the same time have come to regard its negative presence in many instances is a sore disappointment in clinching a diagnosis in which almost absolute clinical evidences of the disease were at hand In other words like others, I have long since been forced to conclude that a positive Wassermann is laboratory proof of syphilis, but that a negative Wassermann is by no means a method of proving that syphilis does not exist

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[6] Geiger J C Human Cases of Rabies in California and Their Treatment California State Jour Med June 1916

* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association Detroit June 1916

The Wassermann test, while therefore a boon to us in diagnosis, is at the same time, in other instances, a crushing disappointment How often does this occur? It is almost impossible to estimate accurately the percentage of positives that are to be found in all syphilitic cases that are daily examined throughout the medical world My own experience of nine years in the work entitles me to estimate it in terms of possibly 60 per cent, that is, of all syphilitics examined, including blood and spinal fluid Wassermann reactions, we will get 60 per cent of positive findings in all untreated patients who have passed beyond the primary period

With these figures before us, it might be well to inquire into the meaning of the 40 per cent negatives in manifest syphilitic conditions Is this a fault of the technic or is it due to a temporary or permanent disappearance in the reaction in certain persons and in certain phases of the infection, regardless of the application of specific medication? I would answer as a result of my experiences that it is due partly to the first cause and partly to the second I say this advisedly, because I have been able to add 15 per cent to the column of positives by utilizing another test which eliminates those errors inherent in the test itself I have been unable to add much to the percentage of positives by eliminating faults due to factors inherent in the idiosyncratic factors of the patient or of the disease, unknown factors that make his blood and spinal fluid consistently negative at certain times and under certain conditions I do not include, in the latter statement, however, my use of the "provocative" method of producing positives by means of arsenobenzol injections

About four years ago my attention was called to the method of Hecht and Weinberg[1] in demonstrating the presence of the syphilitic antibody, if such it may be termed, by a method first described by them I had repeatedly tried out methods of making Wassermann tests other than that used by the Berlin school, but in each instance found none of them in any sense superior in point of accuracy to the original method There were, however, certain elements in the method of these workers that logically recommended at least a trial of their methods In first order I might mention the fact that the method utilized unheated serums This is undoubtedly a point of superiority over the Wassermann, which utilizes inactivated or heated serums Heating of blood serum for the purpose of destroying complement unquestionably also destroys part of the syphilitic antibody or substance responsible for complement fixation If this is true, in the presence of a small amount of this substance the performance of a Wassermann test with inactivated serum most certainly will tend to produce a negative result Another explanation of this may be found in the claim of those who believe there are two kinds of syphilitic antibody, one thermolabile, the other thermostable, that in some cases and under certain conditions the thermolabile factor predominates and under other conditions the thermostable Granting that a test were to be carried out while a serum was charged with thermolabile antibody and weak or deficient entirely in thermostable body, inactivation would necessarily destroy the element that would complete complement fixation and give a negative result where a positive should and would have been obtained with an active or unheated serum

This fact seems to have some support in addition to my observation from Vladimir Busila,[2] who showed that both blood and spinal fluid contain two syphilitic amboceptors, one thermostable or unaffected by temperature of 56 C and the other thermolabile, that is, destroyed by that temperature He states that one or both may be present and in various proportions The thermolabile is the first to appear in the blood on syphilitic infection and the last to disappear under treatment When both amboceptors are present, the Wassermann reaction yields a weaker result when the serum is previously heated than when it is not He states also that when the thermolabile amboceptor is present alone or nearly alone, the Wassermann reaction with heated serum gives a negative result, but without heating, a strong positive result The negative blood Wassermann performed with the ordinary technic which includes preliminary heating, is not, therefore, a proof of the absence of syphilitic amboceptor Busila also makes the observation, which is rather interesting, that syphilitic cases with a positive reaction exclusively in spinal fluids are rare, much less common than is generally thought, and includes cases mainly in which the blood amboceptor is exclusively of the thermolabile variety, or nearly so He states, in the light of his own observation, that by the performance of the blood Wassermann with unheated serum one may thus generally dispense with the cerebrospinal fluid Wassermann He further believes that the thermolabile amboceptor often exists alone in cases of latent, inadequately treated or nervous syphilis, and the Wassermann reaction performed with the original technic is thus unavailable, precisely in the cases in which it is most needed

Again it must be remembered that the Wassermann technic does not take into account the presence of natural antisheep amboceptor The presence of antisheep amboceptor in the blood serum of persons depends, it is assumed, on the ingestion of mutton It is impossible to state just how much mutton must be ingested before natural amboceptor appears in the blood We have seen it present in fairly large amounts in persons as young as 12 The amount of this substance varies within wide limits, as we shall see later It is fair to assume that if in the Wassermann reaction one utilizes a certain amount of amboceptor made from rabbit's serum and fails to take into account the amount naturally present, then the balance for the hemolytic system which our titration experiments have established as a prior step to the performance of the actual test is seriously impaired If, for instance, 0 5 c c of a 1 2,000 dilution of rabbit antisheep amboceptor will hemolyze 1 c c of a 5 per cent sheep corpuscle suspension, and already sufficient amboceptor is present in the patient's serum to hemolyze 1 5 c c of sheep corpuscles, as I have frequently noted in my work, then the balance is most seriously disturbed and reliable work cannot be carried out

The method of Hecht and Weinberg was pointed out to me during my stay in Paris, by Leredde particularly The method obviously has much to recommend it in that it utilized unheated serums and took into account the presence of natural amboceptor and natural complement The method was put on trial, and the principles already mentioned readily asserted themselves as eliminating the errors inherent in the classic Wassermann. After working out Hecht and Weinberg's method, I determined on the expedient of estimating the exact amount of complement and amboceptor present in each serum, and utilized only the exact amount of sheep corpuscles hemolyzable by that much amboceptor and complement. In other words, my work with this test added to the accuracy of the "balance" of the hemolytic system. The method which I used and first reported before this Association[3] is as follows:

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[1] Hecht and Weinberg Wien klin Wchnschr 1909 22, 256

[2] Busila Vladimir Presse med Sept 23 1915

Place in a rack fourteen small test tubes. The first ten of these tubes are used to determine the hemolytic index of the suspected blood. By this I mean the exact amount of hemolytic amboceptor present in the given blood serum. The last four tubes are used in the actual test. Add 0.1 c.c. of fresh unheated patient's blood serum to each of the first ten tubes. Then add decreasing amounts of normal salt solution to these tubes, beginning with 1 c.c., then 0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2 and 0.1 c.c. to the succeeding nine tubes. Next add increasing amounts of fresh 5 per cent. suspension of sheep's blood, starting with 0.1 c.c. and ending with 1 c.c. Place the rack in the water bath for one-half hour. The tube which last shows complete hemolysis constitutes our "hemolytic index"; if it is Tube 4, our index is 4, because this tube had received 0.4 c.c. of sheep's corpuscles to be added to the last four tubes. The first three tubes (11, 12 and 13) constitute the tubes for the actual test, while the last tube in the rack (Tube 14) serves as our serum control tube. Tubes 11, 12 and 13 receive therefore the patient's serum, the proper amount of sheep's corpuscles dependent on hemolytic index, rising strengths of antigen, but no complement and no amboceptor. Tube 14 receives only sheep's corpuscles, but no antigen.

In my technic I use 0.1 c.c. of a diluted antigen determined by titration in tube 11, 0.15 c.c. antigen in Tube 12 and 0.2 c.c. in Tube 13. In order to equalize the volume of fluid in all these tubes, I add 0.2 c.c. normal saline to Tube 11, 0.15 c.c. to Tube 12, 0.1 c.c. to Tube 13 and 0.3 c.c. to Tube 14. The tubes are then agitated and placed in the water bath for half an hour. These last four tubes are filled at the time I make the additions to the first ten and are left with them in the water bath for one-half hour for fixation of complement; the rack is then taken out and the hemolytic index computed. If the index is low, say from 1-4, I add 0.1 c.c. of sheep's blood to the last four tubes. If the index is between 5 and 7, I use 0.15 c.c. sheep's blood to the last four tubes; if between 10 and 15, I use 0.25 c.c.; if between 15 and 18, I use 0.3 c.c., and if between 18 and 20, I use 0.35 c.c. If the patient's serum has an index below 3, I regard the reaction as of doubtful value. If it is above 3, I regard it as absolute. The reaction is read off exactly as in the Wassermann, that is, inhibition or noninhibition of hemolysis. If the amount of complement or natural antisheep amboceptor is very low, we can add the proper amount of guinea-pig's serum or rabbit's immune serum, ascertained by preliminary titration.

The particular advantage of this test is the fact that we are dealing with unheated serums, avoiding the chance of the development of complementoid substances. I wish to state that the Hecht-Weinberg-Gradwohl test has never been found negative in any blood serum which showed a positive Wassermann, but it has frequently been found positive in blood serums that show a negative Wassermann. Thus, its advantage can readily be seen.

Having worked out the technic, I have consistently followed it up with a close comparison with the classic Wassermann. In every test carried out by me for complement fixation diagnosis of syphilis I have performed both the Wassermann and the Hecht-Weinberg-Gradwohl. Many of these tests were performed without any knowledge of the clinical history in advance, and my reports were unhesitatingly given to my clinical consultants, sometimes showing a positive in both tests, sometimes showing a negative Wassermann and a positive Hecht-Weinberg-Gradwohl, sometimes showing negative both, but never showing a positive Wassermann and a negative Hecht-Weinberg-Gradwohl. At first I was astonished at the frequency of the "dissociated reaction," by which I mean the negative Wassermann and the positive Hecht-Weinberg-Gradwohl. Later I lost my astonishment and came to the conclusion that the method I used in eliminating the factors of errors inherent in the Wassermann had thoroughly justified me for the additional time spent on it. We found that in no instance where we obtained a positive Hecht-Weinberg-Gradwohl and a negative Wassermann was our work at fault or our serologic diagnosis a surprise to the clinician. We must confess that there are still certain cases of syphilis in which both tests were negative which were really syphilitic, as proved by true clinical manifestations and later the appearance of positive reactions in one or both tests at a subsequent examination. These were invariably cases of latent syphilis in robust individuals. We wish to add, too, that the use of cholesterinized antigens does not measure up in accuracy to the use of the Hecht-Weinberg-Gradwohl test as a serologic test for syphilis. We have carried out both Wassermann and Hecht-Weinberg-Gradwohl, and have utilized all the different antigens now in common vogue. We have lately tried out the use of cholesterinized human heart antigen in an endeavor to compare the results obtainable with this method to those obtainable with a noncholesterinized antigen in the Hecht-Weinberg-Gradwohl technic. We must announce that the Hecht-Weinberg-Gradwohl frequently gave undoubted positives when the cholesterinized human heart antigen in the straight Wassermann technic failed to do so. In other words, our positives with the Hecht-Weinberg-Gradwohl cannot be explained on the basis of increasing the *sensitiveness* of the antigen; they can be explained only on the basis of the elimination of the factors at fault already enumerated. Furthermore, I wish to be understood as stating that when I speak of negative Wassermann and positive Hecht-Weinberg-Gradwohls, we do not mean a *faint inhibition* in the latter and a *complete hemolysis* in the former. The results are astonishingly different and striking, on the one hand a clean-cut negative Wassermann, on the other a definite and distinct, positive Hecht-Weinberg-Gradwohl.

A recent publication by Sellards and Minot[4] alludes to the fact that the writers in fourteen cases in only 134 found natural amboceptor in the amount of two or more units. They also mention that where they depended on natural sheep amboceptor no hemolysis occurred and there was no apparent explanation for this lack of hemolysis except the inefficiency of the natural amboceptor. These statements, while based on an absurdly small number of cases and under conditions unknown to us, are so utterly at variance with our findings and our previous statements that we feel it necessary to dwell on them at some length here. Our personal experience now with something like

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[3] Gradwohl, R. B. H.: The Hecht-Weinberg Reaction as a Control Over the Wassermann Reaction, THE JOURNAL A. M. A., July 18, 1914, p. 240.

[4] Sellards and Minot: The Antagonistic Action of Negative Sera upon the Wassermann Reaction, Jour. Med. Research, May, 1916.

5,000 comparative Wassermanns and Hecht-Weinberg-Gradwohls show that at least 98 per cent of the people examined for complement fixation have some amount of natural antisheep amboceptor present This amount, expressed in terms of "hemolytic indexes," that is, amount of sheep corpuscle suspension in tenths of 1 c c hemolyzable by 0 1 c c of serum, varies between the limits of 1 and 20 For instance, the accompanying table, compiled from our complement fixation work from May 1, 1915, to April 30, 1916, shows the number of cases, the total hemolytic indexes and the average

NUMBER OF CASES, TOTAL HEMOLYTIC INDEXES, AND AVERAGE

Month	Cases	Total Hemolytic Indexes	Average Number of Units of Natural Antisheep Amboceptor
May	236	485	2+
June	245	810	3+
July	208	901	4+
August	222	986	4+
September	215	1 301	6
October	216	1 312	6
November	221	1 600	7
December	213	812	3+
January	256	1 610	6
February	254	1 090	7
March	262	1 146	7
April	229	780	6
Total	2 777	Total average	5

In other words, the average beginning May 1915, of units of natural amboceptor present was 2 plus, running up to an average of 7 in November and declining to 6 in April, 1916 A number of times we have found an index as high as 15 The highest we have found was a case recently with 20 Our figures for previous years run approximately the same as those for 1915-1916

In what class of cases and under what conditions are we liable to find the Hecht-Weinberg-Gradwohl positive and the Wassermann negative? We might say that in cases in all periods of syphilitic infection is this finding likely to be found We have found manifest secondary syphilis with a negative Wassermann and a positive Hecht-Weinberg-Gradwohl We have found it again in so-called latent syphilis, in cases of tabes dorsalis, in tertiarism I am referring now to untreated cases In cases of congenital syphilis, we have found it time and again Every Wassermann worker is familiar with the frequent negatives found in this group of cases We have in general found it present in 15 per cent more cases than the Wassermann, irrespective of the period of the disease or whether treatment had or had not been instituted Leredde has called attention to the "dissociated reaction" in ocular syphilis

For the purpose of illustrating the character of cases and the circumstances under which we have obtained what we term a "dissociated reaction," that is, a negative Wassermann and a positive Hecht-Weinberg-Gradwohl, I shall quote the following histories from a large number in our records

Case 1 (8542)—Patient of Dr Jost Treated from December, 1915, as follows Six-tenths gm salvarsan followed by mercurial (gray) oil 1 grain once a week up to Jan 6 1916 Then intravenously 0 6 gm salvarsan followed by weekly injection of mercuric salicylate 1½ grains, up to Feb 4, 1916, then 0 6 gm salvarsan intravenously followed by weekly injections of mercuric salicylate, 2 grains March 4, 0 6 gm salvarsan intravenously Patient disappeared from service, and returned, April 2, expressing a belief that he was cured Blood at the time gave a negative Wassermann, positive Hecht-Weinberg Gradwohl

Case 2 (8024) —Service of Dr Hauck This case came under observation, December, 1914, for a neglected tertiary lesion affecting the vomer and tissues of the posterior nares, decided necrosis with odor of necrotic bone Wassermann was + + + + Patient was put on mixed treatment with four intravenous injections of neosalvarsan, mixed treatment with tonics, continued to date Subsidence of all symptoms, area of necrosis all healed over March 18, 1916, negative Wassermann, positive Hecht-Weinberg-Gradwohl As result of these findings, patient was continued under treatment

Case 3 (6805) —Service of Dr Crowley This man was exposed in August, 1912, when he was 19 years of age Chancre appeared at some time after two weeks He first came under observation the latter part of November of that year The first of December the cutaneous eruption was present He used inunctions of mercury till the first of February, 1913 From that time until the middle of December he took yellow mercurous iodid Then for two months he used inunctions again From the middle of February, 1914, till October, 1915, he took yellow mercurous iodid faithfully From the middle of October till January 5 he took no treatment January 5, Wassermann was reported doubtful only because of the clinical history A single dose of salvarsan was given, March 1 and a second Wassermann was reported negative At this time the patient was advised to discontinue treatment till about the first of January, and then have a Wassermann made Owing to the illness of the attending physician, this was not done, and the patient began to imagine all sorts of things, one being that he had infected his whole family His mental condition became so bad that he insisted on having another dose of salvarsan, and this was administered, Feb 1 1916 On the 9th he brought his father to the office and insisted that a specimen of his blood be sent to the laboratory for examination This was done and was reported from our laboratory under the date of February 12 negative in both reactions His own blood was sent in February 16, and was reported negative Wassermann and positive Hecht-Weinberg-Gradwohl He has received no further treatment, although he has been advised to do so Had a mild attack of grip during March that worried him considerably

Case 4 (3495) —Patient first came under observation at the age of 22 Had been infected at the age of 17 Infection in this case occurred in August 1909, manifestations mild, secondary eruption mild Began treatment Sept 15, 1909, of yellow mercurous iodid, from 1 to 4 grains daily, continuing until May, 1910, then six injections in gluteal muscles (one injection weekly) of 10 per cent mercuric salicylate in liquid petrolatum, each injection 4 minims This was followed by 3 to 6 yellow mercurous iodid pills daily ⅓ grain each, also solution of potassium iodid, about 30 grains daily for three months No further treatment until March and April, 1912, when one injection of mercuric salicylate same as above was given weekly for the two months, followed by no treatment until August 27, when 0 6 gm salvarsan was administered intravenously No further treatment was given October, 1913, Wassermann negative Jan 30, 1914, Wassermann negative Aug 31, 1914 Wassermann negative, Hecht-Weinberg-Gradwohl positive It may be also of interest to know that since then this patient had an injection of 0 6 gm neosalvarsan about May, 1915, then about September, 1915 Wassermann showed negative, then, March 1, 1916 we made test Wassermann, negative, Hecht-Weinberg-Gradwohl positive

Case 5 (4476) —Service of Dr Johnson When patient came under observation she had had syphilis of five years' standing Later had syphilitic baby At time of examination no signs of syphilis Results negative Wassermann and positive Hecht-Weinberg-Gradwohl

Case 6 (5130) —Service of Dr Phillips This was a case of beginning tabes with incontinence of urine and severe headaches He had been treated twenty years previously for a short time for a suspicious sore We found a negative Wassermann and a positive Hecht-Weinberg-Gradwohl

Case 7 (3293) —Service of Dr Boyne Man, History of exposure ten days previously Typical lesion on glans. No treatment before examination. We found negative Wassermann and positive Hecht-Weinberg-Gradwohl, 0.9 gm. of salvarsan given intravenously the day following this 'dissociated reaction." Lesion disappeared rapidly within seventy-two hours. Two weeks later neosalvarsan again given. Patient refused further treatment. Was married subsequently, and had an apparently healthy child.

Case 8 (3254).—Service of Dr. Winter. Woman, aged 32, came under observation, July 15, 1908. Had been married two years and had had one child previous to her marriage by her husband. Was unable to carry three subsequent pregnancies to term. Her husband was syphilitic, and had been under treatment. Patient took yellow mercurous iodid pills for about two years faithfully, with the result that she gave birth to a healthy child in 1910. In July, 1914, we found an examination of the blood gave a negative Wassermann and a positive Hecht-Weinberg-Gradwohl. She was found to be suffering with a septic endocarditis, of which disease she died in August, 1914.

Case 9 (8255).—Service of Dr. Caldwell. Woman came under observation, April 7, 1916, some weeks after losing her only child. This child, which was only 14 months old, had been ill only a few days. Patient was extremely nervous, could not sleep or eat. She had been married nine years. First baby had lived twelve days, had sores on body. Then followed two miscarriages and then the child which had lived only fourteen months. Family history showed that mother had four miscarriages before raising a child, and two of her sisters have each had a miscarriage. She made the remark that none of them had ever been able to raise a boy. Father now at the age of about 65 has kidney trouble, and has been suspected of having tuberculosis for several years. Patient had a very bad case of pyorrhea, which she said had run on for years. Skin on hands and at elbows was dry, and edge of tongue was red. Had frequent attacks of diarrhea, appearance of pellagra. Husband a big, healthy fellow, who denied all knowledge of syphilis. Only treatments given her were two injections of sodium cacodylate. This made some improvement. April 18, we obtained a negative Wassermann and a positive Hecht-Weinberg-Gradwohl. Patient's husband denied syphilis, and blood examination showed negatives in both tests. Patient continued on mercuric chlorid intravenously injected. This was a case of hereditary syphilis. Dr. Caldwell states that he was indebted to the Hecht-Weinberg-Gradwohl for the diagnosis; otherwise he would have considered this a case of pellagra.

Case 10 (2931).—Service of Dr. Darner. Patient came under observation with eruption on chest. Diagnosis, syphilitic leukoderma. History of a chancre six years previously, with very small amount of treatment with pills. Wassermann at that time was positive. Present observation is made six years after initial sore, and at this time the findings are negative Wassermann and positive Hecht-Weinberg-Gradwohl.

Case 11 (6817).—Service of Dr. Lyon. Patient came under observation with a mucous patch and an infection. History of a primary sore. Our findings were a negative Wassermann and a positive Hecht-Weinberg-Gradwohl. The mixed infection yielded to specific treatment.

Case 12 (6268).—Service of Dr. Galloway. Patient came under observation at the age of 54. Diagnosis was locomotor ataxia. Patient denied syphilis, but admitted gonorrhea. Attended the wife in her first confinement in 1895. Child syphilitic, and died in about a week's time. Advised both patients to take treatments, but they refused. Attended the wife in her second confinement in 1896, when she again had a syphilitic child which died in about a week. Then the husband consented to take treatment at this time but continued only a short time because he had no clinical symptoms, and showed no scars, glandular enlargements, or other proofs of infection. Again confined the wife who had a third syphilitic child in 1897 but which recovered under mercurial inunctions and is alive and well today. Mother had been treated two months previous to birth of last child. After this confinement the husband again consented to take treatment, and continued it for about one year. Treatment was with yellow mercurous iodid, and later with red mercuric iodid and potassium iodid. He was urged to continue treatment but he refused. About six or seven years ago he complained of general physical weakness, loss of sexual power and occasional pains in legs. Examination showed Argyll Robertson pupil, Romberg sign, and absence of patellar reflex. Under treatment of red mercuric iodid and potassium iodid, with strychnin intercurrently, he has improved subjectively, and continues at work. Our blood examination, Nov. 27, 1915 showed negative Wassermann and positive Hecht-Weinberg-Gradwohl.

Case 13 (4826).—Service of Dr. Rice. Patient had had a syphilitic infection some eight or nine years ago. Has been under treatment at intervals since then. She was not receiving any treatment at the time the laboratory finding was made but certainly had an infection, also stricture of the rectum which was divulsed some two and one half years ago, and dilation was kept up for a few months. She returned a short time ago and the rectum was again divulsed and she was put on antisyphilitic treatment since which time she has apparently been doing first rate, but there is no question that she had a syphilitic infection a number of years ago.

Case 14 (6572).—Service of Dr. Neel. Patient and her husband were infected in 1907. Treatment with mercury and potassium iodid was given for several years with pronounced success. In the latter part of 1915 he exhibited symptoms of the disease and had a positive Wassermann. He has been relieved by treatment. His wife exhibited no symptoms of the disease but showed a negative Wassermann and a positive Hecht-Weinberg-Gradwohl.

Case 15 (2869).—Service of Dr. Parrish. This was a case of marked tertiary syphilis with no previous treatment. Six months before treatment we found a negative Wassermann and a positive Hecht-Weinberg-Gradwohl. Marked improvement after intravenous injection of salvarsan.

Case 16 (7950).—Service of Dr. Fischer. History of old syphilis. Diagnosis diplopia, made two years previous, which cleared up with mercuric chlorid and potassium iodid. Had two years' treatment. Examination gave Wassermann ++, Hecht-Weinberg-Gradwohl +. Received five neosalvarsans 9 gm. each. An examination made here, Sept. 30, 1915, showed a Wassermann ++ and Hecht-Weinberg-Gradwohl +. Then ten injections of salvarsan were given. A third examination showed a negative Wassermann and a positive Hecht-Weinberg-Gradwohl. General result apparently excellent. Still continuing treatment.

Case 17 (2599).—Service of Dr. Bassett. This patient first came under observation in April, 1913, with the initial sore on the lip. The examination of blood done at this time gave a positive Wassermann. One intravenous injection of salvarsan was given, with internal treatment for seven months, given, not continuously but interruptedly, when all medication ceased. The following April the patient returned, complaining of sore throat. No patches were observed. The patient simply showed a pharyngitis which did not improve with gargles and applications. Another specimen of blood was submitted to us and showed a negative Wassermann and a positive Hecht-Weinberg-Gradwohl. A second dose of salvarsan was then given intravenously and the patient was treated until Dec. 1, 1915.

Case 18 (2144).—Service of Dr. Flader. This patient came under observation, Jan. 22, 1914. On examination a large syphilitic ulcer was found over the right scapular, mucous patches of the mouth and tongue, and an ulcerated condition of the mucous membrane of the nose. He had been under the usual mercurial treatment, previously for about two years, which is about eight years ago. His primary lesion dates back about six years from the time he first consulted Dr. Flader. His treatment consisted only of mercury and potassium iodid by mouth, and there was no other treatment given. Jan. 9, 1914, 0.6 gm. of salvarsan was given intravenously, and six days later all the lesions of mouth, back and nose had disappeared, and to date there has been no return of the trouble or any other evidences. He claims he will take no further treatment unless the evidences of the disease manifest themselves. Blood examination made here showed Jan. 28, 1914 negative Wassermann and positive Hecht-Weinberg-Gradwohl.

Case 19 (5056).—Service of Dr. Thierry. This was a case of imbecility due to hereditary syphilis. Wassermann negative; positive Hecht-Weinberg-Gradwohl.

Case 20 (6231) — Service of Dr Thierry This was a case of mental deficiency due to hereditary syphilis Wassermann negative, Hecht-Weinberg-Gradwohl positive

Case 21 (4978) — Service of Dr Pauley This patient's family history was negative His previous venereal history showed gonorrhea in May, 1911, July, 1912, and June, 1913 Jan 7, 1915, he complained that he had had severe headaches for about one week They improved somewhat under salicylate, but returned later April 1, 1915, he was confined to bed with fever and swelling on both frontal sinuses, also severe headache Feb 12, 1915, he said he had had a blood test made, which was positive February 20, he was given salvarsan, and three mercury injections at intervals He returned, March 28, 1915, and told Dr Pauley what had been done The laboratory findings at this time April 25, 1915, showed a negative Wassermann and a positive Hecht-Weinberg-Gradwohl May 8, 1915, 0 4 gm of salvarsan was given Then he received from 2 to 2 5 c c of a 1 per cent benzoate solution In May, June, July and August he received, respectively, twelve, nine, nine and two injections August 22, he reported that his bowels had not moved for three days, and he had had about five or six chills August 24, he had a chill at 11 a m, followed by fever, 5 30 p m his fever was 102 7 and his pulse 107 August 25, at 9 a m his fever was 99 2 and his pulse 96, at 5 40 p m his temperature was 100 7 and his pulse 90 Blood examined microscopically showed what we thought to be plasmodium, but owing to staining not being good, the question was doubtful At no time were there any eruptions or mucous patches, but the lymphatic glands were enlarged, and there were severe headaches Sept 23 1915, he lifted heavy weights, and slipped Testicle swelled and became very painful On the following day the testicle was swollen more, and the bowels moved at 11 a m, September 23, and then nothing would make them move until 4 30 p m, September 29 The patient was slowly improving when he left the hands of Dr Pauley

Case 22 (6491) — Service of Dr Gradwohl This patient has been under two years' continuous treatment, having received four injections of salvarsan with periodic intramuscular injections of mercury In the absence of all symptoms the patient still shows a negative Wassermann and a positive Hecht-Weinberg-Gradwohl

Case 23 (3168) — Service of Dr Gradwohl In August, 1913 patient came under observation with a history of syphilis of two years standing Had had only six months' treatment by mouth Showed mucous patch Gave strong positive Wassermann and Hecht-Weinberg-Gradwohl at the time He was kept under continuous mercury and salvarsan treatment Six salvarsans and weekly injections of mercury were given with proper intervals of tonic treatment for one year Later he showed negative Wassermann and positive Hecht-Weinberg-Gradwohl This case has been continued, and only in the past two months has shown negatives in both tests

Case 24 (8211) — Service of Dr Gradwohl Infection three months ago Treated with pills Shows a negative Wassermann and positive Hecht-Weinberg-Gradwohl At this time the patient is profusely covered with macular syphilids, and also numerous mucous patches in his mouth

Case 25 (6453) —Service of Dr Gradwohl Shows a negative Wassermann and a positive Hecht-Weinberg-Gradwohl in December, 1915, eight months after initial lesion and after two salvarsans had been given with no other treatment It is interesting to note that after intravenous injection of salvarsan, January 26, 1916, he showed a Wassermann + + + + and a positive Hecht-Weinberg-Gradwohl ("reactivation")

Case 26 (8204) —This patient came under observation with a primary sore followed by a secondary eruption He had had previous to my observation three salvarsans, and fifty-six intramuscular injections of mercury He now presents himself two and a half years after with chancre recurrens At this time he shows a negative Wassermann and a positive Hecht-Weinberg-Gradwohl Under treatment the chancre disappeared, but the reaction persists (May, 1916)

Case 27 (3634) —This case gives a history of primary sore one year previously He has no visible indication of syphilis, but complains of dizziness Examination of blood at this time shows negative Wassermann and positive Hecht-Weinberg-Gradwohl Has been continued under treatment to relieve his symptoms Up to date one year after that he showed strong positive Wassermann and positive Hecht-Weinberg Gradwohl This is evidently a "positive fast" individual

Case 28 (5531) — Patient of Dr Jost Contracted syphilis twenty-seven years ago Had treatment for a period of two years with pills, spent three to six weeks at Hot Springs each year up to six years ago Now complains of a swelling in right testis Wassermann negative, Hecht-Weinberg Gradwohl positive

Case 29 (4992) — Service of Dr Jost Husband contracted syphilis six years ago (during his married life) Patient's history negative, no symptoms, no treatment Wassermann negative, Hecht-Weinberg-Gradwohl positive

Case 30 (6065) — Service of Dr Jost Treatment 0 6 gm salvarsan intravenously followed by sixty-two injections of sodium cacodylate intravenously, 10 grains each, during a period of four months Wassermann negative, Hecht-Weinberg-Gradwohl positive

Case 31 (6064) — Service of Dr Jost Came under observation, Oct 20, 1915 No history, symptoms or treatment Blood test made to verify showed positive Hecht-Weinberg-Gradwohl given by his child Wassermann negative Hecht-Weinberg-Gradwohl positive

Case 32 (8278) — Service of Dr Jost No history, no symptoms, and no treatment Syphilis papulosa mucosae oris Wassermann negative, Hecht-Weinberg-Gradwohl positive

Case 33 (3060) — Service of Dr Jost Came under observation, June 18, 1914 Contracted syphilis, June, 1912 Treated with pills for seven months Spent two and a half weeks at Hot Springs June 16, 1914, complained of nocturnal headache and loss of weight, and had large syphilitic sore on left leg Wassermann negative, Hecht-Weinberg-Gradwohl positive

Case 34 (4865) — Service of Dr Jost Patient came under observation with large ulcerated area on left leg 3 inches below knee Has had some treatment on and off for past two years No history Wassermann negative, Hecht-Weinberg-Gradwohl positive

COMMENT

The group of cases in which the amount of natural amboceptor in human serums seems to play a definite role in making a Wassermann appear negative and a Hecht-Weinberg-Gradwohl positive comprises the following

1 Cases of ocular syphilis

2 Cases of visceral syphilis, particularly of the liver and heart

3 Cases of syphilis that have received intensive but inadequate treatment

4 Provocative cases in which we are seeking to revive a Wassermann in suspected cases

5 Cases of monosymptomatic tertiaries

It is my belief that this test is far superior in every respect to the Wassermann in point of delicacy of "control" of treatment Heidingsfeld[5] speaks of the superiority of this test in estimating the finest shades of any remaining trace of the disease in cases under treatment, while he maintains that the Wassermann used in this way estimates only the coarse, early improvement This to my mind expresses exactly my own position based on my experience with the test in cases under treatment I have noted that the vigorous institution of antisyphilitic treatment, except in the case of the "Wassermann-fast" subject, quickly reduces a positive Wassermann to a negative Not so with the Hecht-Weinberg-Gradwohl, however Long after the Wassermann has become negative and the case very properly still held to the specific treatment, this reaction persists The reduction of the Hecht-Weinberg-Gradwohl from positive to negative under treatment is far more significant to me as a proof of successful therapeusis than is the Wassermann Another observation from my experience with this test which might also be mentioned here is that when the Hecht-Weinberg-Gradwohl becomes negative as a result of the intensive treatment that is needed to bring this about, it seldom lapses back to positiveness In other words, the Hecht-Weinberg-Gradwohl when negative after being persistently positive in untreated syphilis is the "consummation so devoutly to be wished by the syphilologist" I of course do not wish to go on record as stating this as a proof positive of "cure," but I do insist that it has a greater value when repeatedly negative than has a Wassermann under similar conditions

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[5] Heidingsfeld Serology and Diagnosis of Syphilis New York Med Jour April 8 1916

CONCLUSION

I wish to state also that the Hecht-Weinberg-Gradwohl in my hands has been a far better check or control of the Wassermann than the use of any of the controls now in vogue The so-called borderline Wassermann reactions, if truly positives, will show a strong Hecht-Weinberg-Gradwohl A supposedly borderline positive Wassermann that shows a clearly defined and complete hemolysis in the Hecht-Weinberg-Gradwohl tubes is not a borderline at all, it is a spurious reaction and should be thrown out of consideration There is no better way to control the accuracy of the Wassermann than the use of this test on every blood submitted for examination While originally advocating this test, therefore, as a control over the Wassermann, I feel at present that it has attained the dignity of something more than a mere "control" over the classical test It should take precedence over this test by virtue of its greater accuracy and be accepted as such wherever it is used Outside of the extra amount of time necessary in making the test, there is no argument against its widespread and continuous use in the serologic laboratory The extra amount of labor is more than compensated for by the greater amount of information obtainable I do not recommend it, therefore, solely as a control Rather do I speak of it as a far better test than the Wassermann except in the 2 per cent of cases that have no hemolytic index In this small group the Wassermann must remain our ally In all other cases we could, indeed, eliminate the Wassermann, and lose nothing by so doing It is only in deference to those who cling to the Wassermann that I continue to place it ahead of the Hecht-Weinberg-Gradwohl in my reports To my mind it has long since been passed in the race by the Hecht-Weinberg-Gradwohl, and is bringing up a bad second

No negative Wassermann test to my mind is worth while unless backed up by a negative Hecht-Weinberg-Gradwohl When both are negative, which occurs in 25 per cent of syphilitic cases, according to my statistics, then recourse must be had to the various other methods of the clinic and the laboratory, for the inclusion or exclusion of any remaining trace of the disease

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ABSTRACT OF DISCUSSION

Dr M L Heidingsfeld Cincinnati A year and a half ago I took up the study of the Hecht-Weinberg serologic examination as modified by Dr Gradwohl with a great deal of skepticism I was thoroughly imbued with the idea laid down by Wassermann and his confreres that the Wassermann serologic examination was the test par excellence, that all modifications had certain fallacies that might lead to serious error, and that the Wassermann itself could never err on the unsafe side, namely, we could never have a positive Wassermann and no syphilis present if carefully and consistently carried out All the modifications, the Noguchi and the Hecht-Weinberg as originally laid down, were regarded by Wassermann and his co-workers as possible pitfalls I have used the modification as set forth by Dr Gradwohl for a year and a half, and I can confirm everything he has said This modification is absolutely trustworthy and reliable I do not know of a single instance where I have had a positive reaction in which syphilis could be excluded definitely In this respect it is as trustworthy as the Wassermann itself I have always been a strong convert to serologic control I will admit that there are many who are opposed to that idea The Wassermann and its modifications have fallen into considerable disrepute in my judgment a very unfair and unjust disrepute I believe that the serologic examination as laid down by Wassermann himself, if all the precepts are carefully carried out, the controls properly made, reagents carefully and properly prepared and the various steps standardized and properly performed, the reaction is absolutely trustworthy and reliable I can say equally as much for the Hecht-Weinberg To treat a case of syphilis without a serologic control is very unsatisfactory and unscientific These controls give us a wealth of information that we otherwise would not have, whether the case is progressing favorably or unfavorably, and how soon the treatment should be repeated, whether or not the same remedy should be used, or a change made to some other remedy, whether or not early marriage can be countenanced or discouraged The Hecht-Weinberg as modified by Gradwohl gives us more information Very often cases of syphilis which are strongly positive to the Wassermann become Wassermann negative in thirty to sixty days after salvarsan treatment but remain positive to the Hecht-Weinberg (Gradwohl), for six months or longer These cases, therefore still have latent *syphilis from a* Hecht-Weinberg (Gradwohl) standpoint, whereas from a Wassermann standpoint they appear to be clinically and serologically negative These are the cases that are prone to relapse unless treatment is energetically pushed Cases which are serologically negative to both the Wassermann and Hecht-Weinberg (Gradwohl) are not so prone to relapse Exceptionally they also relapse if the case is indefinitely withdrawn from treatment and observation Relapses in this class, however are the exception, rather than the rule and if they are controlled by monthly Hecht Weinberg (Gradwohl) serologic examinations, any tendency to relapse can be recognized early and brought under more prompt control than otherwise In my experience I have also often noted a positive Hecht-Weinberg (Gradwohl) and negative Wassermann, but I have never observed a negative Hecht-Weinberg and a positive Wassermann This in and of itself shows that the Hecht-Weinberg (Gradwohl) modification is a much more sensitive test for syphilis than the Wassermann

Dr A I Wolbarst New York I have had a number of examinations of serum made for me by Dr Gradwohl with the Hecht Weinberg modification not so much as an original test for syphilis but to check up the results of other laboratories with the Wassermann test It has been my experience that you can go into any laboratory in this country and take your choice as to whether you are going to get a positive or a negative report on any serum submitted Some laboratories will give you a positive and some a negative report on the same serum taken at the same time and presented under the same conditions Serologists are working hard trying to devise some way by which the thirty-five or forty sources of error which have been revealed may be obviated I was very glad to employ this Hecht Weinberg test as modified by Dr Gradwohl, and to see which of the laboratories I was dealing with furnished the more accurate reports and I am very gratified to say that, considering the clinical manifestations of the case the Hecht-Weinberg appears to me, as far as my experience goes, to be far more delicate and far more reliable than the straight Wassermann In any number of cases where I have had contradictions positive and negative in the same serum where I have had a negative Wassermann given to me in a case of undoubted syphilis, the Hecht-Weinberg has been positive I have never seen an instance of a negative Hecht-Weinberg with a positive Wassermann I feel that in any case in which we are in doubt as to whether the Wassermann we are getting is to be depended on, the Hecht-Weinberg Gradwohl modification gives us an amount of information which is of the greatest importance It ought to be used more generally than it is

Dr **Leland Boogher**, St Louis I have no faith in the Wassermann test being infallible A minus Wassermann does not necessarily mean no syphilis I always feel safer when I have the two tests made In all the cases I have had it has been interesting to notice that where there was a negative Wassermann and a positive Hecht-Weinberg I had made a diagnosis of syphilis There are many cases where I suspect syphilis and have the tests made, and it is sometimes very satisfactory to find that the diagnosis has been correct As to the accuracy of the Hecht-Weinberg test, I am only speaking from the standpoint of the clinician, but I have always felt that it was possibly a more delicate test than the Wassermann I like to have both tests made on my patients

Dr **Lewis E Schmidt**, Chicago I agree with Dr Gradwohl and Dr Heidingsfeld I wish to cite several instances where the Wassermann was negative two and three years after the last treatment Under those circumstances we are prone not to give further treatment In several instances we found the Hecht-Weinberg test positive two or three years after the last negative Wassermann In other words, during that entire period of time the Wassermann was negative, yet at that late period the Hecht-Weinberg was positive, which set me thinking as to the necessity for further treatment, particularly in this series of cases

Dr **M L Heidingsfeld** Cincinnati The Wassermann is also invaluable when used in conjunction with the Hecht-Weinberg (Gradwohl) It reveals the finer shades of early improvement which the Hecht-Weinberg in and of itself fails to reveal Moreover, the two controls serve as a check on each other, eliminating, in a measure, any possible error of a purely technical nature Each serves as a check on the other in this respect The Hecht-Weinberg is positive is always strongly positive, never weakly positive as the Wassermann, when it shades off in the stages of early improvement

Dr **Carl C Warden**, Ann Arbor, Mich There is no question that theoretically and practically the Hecht-Weinberg is an improvement on the Wassermann The great difficulty lies in two factors, one the complement and the other the antigen The antigen is the thing We are extremely unfortunate in the Wassermann reaction The antigen is very indefinite It has been classed as a lipoid, but there is no substance in it on which we can really lay our hand I believe with further studies on the toxicity of normal serum, of the periodic disappearance of the complement in normal serum and with improvements in the syphilitic antigen, that we will be able to pick up those positive reactions better than we do now

Dr **Benjamin Gruskin**, Chicago I have used the Hecht-Weinberg test in over 200 cases I have nothing but praise for it as a control, and still call it a control The clinician as well as the laboratory man is sometimes at a loss to interpret the so-called borderline cases Some laboratory men, in a case that gives a slight positive reaction will say, "I am not going to condemn that man because he gives a very faint positive reaction' Others, again, are very liberal in pronouncing a case syphilis when they see the slightest degree of nonhemolyzed cells Really, one test is not sufficient in a doubtful case so any additional control is of great value I would rely more on a positive Wassermann than on a positive Hecht-Weinberg and I would rely more on a Hecht-Weinberg negative than I would on a Wassermann negative, but I believe by employing both one can check up and make a standard which can be called 'faintly positive" or "strongly positive" What is needed more in laboratory work is to know exactly what "one, two, three or four plus" positive is What one man will call one plus another will ignore altogether However, the two tests used together by a close observer, who has his own standard for what he calls "one, two or three plus positive will certainly be a great aid to the laboratory man as well as to the clinician Another factor regarding the Hecht-Weinberg which must be taken into consideration is that the serum must be sent to the laboratory immediately This is hardly possible with a serum that is sent from out of town, which necessarily would be at least a day old In these cases one may inactivate the serum, as for the Wassermann, and go through with the Hecht-Weinberg in the usual manner, plus additional complement

Dr **R B H Gradwohl**, St Louis This is a far easier test to perform than the Wassermann This test uses no artificial amboceptor and no artificial complement It requires no guinea-pigs, it requires no injection of rabbits It requires fourteen tubes, which may look startling, but does not mean very much work It requires one tenth of a cubic centimeter of the patient's serum in each tube We then estimate how much complement and amboceptor are present. In this test we do not have to bother very much with what are called borderline Wassermanns With this test, they are either positive or negative It is in this respect that this test has been of most value in my hands, because any Wassermann worker will confess that these borderline cases have been our bete noir Often we could not tell a clinician whether a given case was positive or negative It was a "borderline" *In these instances the Wassermann instead of being a help* was a great hindrance This test eliminates that If you get a "borderline" Wassermann you will get a strongly positive Hecht-Weinberg, if it is a spurious "borderline' Wassermann case you will get a negative Hecht-Weinberg If it is worth nothing else, it is worth a great deal to serologists from that standpoint

CANCER OF THE PROSTATE *

GRANVILLE MacGOWAN, MD

LOS ANGELES

Cancer of the prostate may be defined as a process of new growth or malignant degeneration of previous growths taking place primarily at any place within the capsule, or within that portion of the urethra which communicates directly with the glandular tissue of the prostate by way of its ducts

For some reason, unknown and unexplainable with our present knowledge, that glandular group, lying between the submucosal urethral tissues and the posterior capsular surface, the so-called posterior lobe, is, or appears to be, the most frequent site for development of cancer of the prostate It is claimed by Young and his school that the exceptions to this are very rare We admit the value of this careful research work, but to us it seems that its conclusions are forced It is often manifestly impossible to determine, when the disease is widely distributed, exactly which is the oldest part, but we do know that it has been seen primarily in any anatomic portion of the gland, and in atrophied, apparently normal, and hypertrophied prostates As there is no definite, unvarying and finely marked syndrome characterizing cancer of the prostate, the diagnosis must be determined largely by exclusion In approaching a prostate suspected of pathologic change, the examiner must keep before him the mental image of the average normal organ about the size of a horse chestnut and of much the same shape, its upper border concave, convex toward the anus, bilobar, but not always symmetrically so, with a groove perpendicular to its long axis between these lobes where the tissues are markedly thinner, showing the course of the urethra through the organ, usually rounded from side to side, but not infrequently flattened like a truffle from its lateral abrupt borders toward its center, elastic, relatively smooth, only moderately sensitive to digital pressure, and movable to a degree from side to side and from above downward.

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* Read before the Section on Genito Urinary Diseases at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

* Because of lack of space all of the individual case reports are omitted in The Journal. The complete article appears in the Transactions of the Section and in the author s reprints

* This paper and the paper by Drs Young and Frontz, which follows are parts of a symposium on the prostate. The remaining papers by Drs Gardner Crenshaw and Squier and the discussion will appear next week

Chronic departures from this type, processes to be diagnosed differentially from cancer, are:

1. Increase in size and density and the presence of hyperesthesia: chronic parenchymatous prostatitis, either total or partial, with groups of hyperplastic glands, oftentimes with capsular adhesions.
2. Long continued, low grade, deep seated abscess of the prostate running its course without the symptoms of frank infection.
3. Primary tuberculosis of the prostate with its massive induration.
4. Stone situated well within the glandular tissue.
5. Atrophy of the glandular tissue with interstitial inflammatory changes.
6. Contracture of the bladder neck.
7. Sarcoma.

Let us see how these differ from, and how, in their symptoms, they resemble cancer of the prostate.

Chronic Parenchymatous Prostatitis.—The exploring finger encounters an obstruction bulging into the rectum from the region of the prostate. This may be symmetrical with a distended capsule, or the inflammatory process may be localized in one or more groups of glands in one lobe, or scattered irregularly throughout the whole organ. Such a prostate is tender on pressure and often very hard. Gentle massage always appreciably alters its consistence, reduces its volume and expresses a succus prostaticus which contains pus, phosphatic debris, lecithin granules, bacteria, epithelial cells of normal shape and staining capacity, and often dead spermatozoa. The mesial groove is still preserved, and a metallic instrument introduced into the bladder can be readily palpated throughout the whole length of the prostatic urethra. Examination of the posterior urethra by a water urethroscope or an open endoscope shows congestion, edema, pus exuding from enlarged glandular ducts, and often cysts and polypoid growths. Increased frequency in urination is often present, and there may be hesitancy and lack of power to the stream, and even residual urine, usually due to the presence of polypi or edema in the posterior urethra. All of the symptoms improve under treatment.

Simple Hypertrophy.—In adenomatous or fibromuscular enlargement of the prostate we palpate through the rectal wall an exaggerated prostate, an organ out of bounds. The enlargement is often symmetrical, but, just as frequently, larger on one side than on the other; it is movable when it can be grasped bimanually: the rectal tissues slide over it, or it slides away from the rectal tissues. There is a certain elasticity approaching the normal to the tumor, or tumors, if the adenomatous elements prevail; any outgrowths beneath the bladder, and up along the seminal ducts are soft and elastic. If there has been much long continued inflammation accompanying the process, and the fibromuscular changes outbalance the glandular, the tumor masses may be indurated, but they are never hard, like sole leather, bone or ivory, and they are not adherent to the surrounding parts. Massage reduces their volume temporarily, and if there has been no infection, expresses a succus prostaticus that contains masses of epithelial cells, undergoing fatty degeneration, abundant lecithin bodies, amorphous calcium phosphates and carbonates, a few leukocytes, many sympexia, and often live spermatozoa. If the patient has advanced to catheter life, infection has almost invariably taken place, and then the microscopic field shows, in addition, pus, bacteria and often a few red blood cells.

The cysto-urethroscope shows a congested, but flexible, posterior urethra with encroaching smooth surfaced whitish adenoma, enlarged follicular ducts, sometimes diverticula, few or many polypi and small cysts. The shaft of the instrument may usually be palpated from the anus to the bladder neck.

Chronic Abscess.—Long continued, low grade, deep seated abscess of the prostate taking its course without fever and without general infection, but with cachexia and deep seated boring pain, may give rise to the mistaken diagnosis of cancer. I had one such case in 1897 in the Los Angeles County Hospital.

> A man, aged 60, had suffered for six months with deep seated pain in the perineum, with increasing difficulty in micturition, and finally complete retention. There were no other symptoms excepting a marked cachexia, constipation and loss of weight. On rectal examination, we found a huge tumor, stone hard and unyielding, occupying the whole pelvic floor. This was believed to be without any doubt, a malignant growth. A perineal exploratory operation was undertaken. Just as the apex of the prostate was opened, there was a gush of pus, and the exploring finger entered a capsular sac, entirely empty of prostatic tissue. This sac surrounded the urethra, which coursed through it, without any communication with it.

Binney reports a somewhat similar case in a much younger man, the exploratory operation being made suprapubically.

Stone in the Prostate.—This need not occasion any diagnostic difficulty, as the Roentgen ray easily differentiates for us.

Prostatic atrophy of the glandular and muscular tissues, with chronic interstitial inflammatory changes causing loss of elasticity in the prostatic urethra, and contracture of the bladder neck, is often painful and simulates cancer very closely at times. The ring of indurated tissue entirely surrounds the urethra and prevents the shaft of the cystoscope at the neck being plainly felt by the exploring finger. In these cases, the best criterion of the nature of the malady is microscopic slides of the tissues removed by the punch.

Tuberculosis.—The occasions on which an error in diagnosis between cancer of the prostate and tuberculosis are possible should not be many, for tuberculosis is usually seen secondary to a similar affection of one or both epididymides with scattered nodules, of only a moderate degree of induration, and early vesical irritability, or else follows a descending urinary tuberculosis of long standing, tubercle bacilli being present in the urine, with caseating destruction of the prostate, from the urethra out, and ulceration along the urethral channel, demonstrable by the urethroscope, and accompanied by a urethral discharge, usually free of micro-organisms. Once, and once only, in an experience of more than thirty years, have I seen a case of primary tuberculosis of the prostate, in a man of 30 in which, symptomatically and by clinical history, we were dealing with a carcinomatous growth, which on microscopic section and subsequent development, was demonstrated to be tuberculous.

Sarcoma—This is more elastic and of less painful development, and is more likely to occur in youth, though I have had two cases in men past 50 years of age

FREQUENCY OF CANCER OF THE PROSTATE

Socin and Burckhardt[1] in 1902 assembled 120 cases, the total material reported in the literature of all languages up to that time During the past thirteen years it has been learned that cancer of the prostate is relatively common, and in great clinics, where the specimens removed in operating for prostatism have all gone to careful microscopic examination, the following figures have been returned Reports from the Necker Clinic place the frequency at 15 per cent, from the Johns Hopkins, at 28 per cent, the Mayo Clinic, at 15 5 per cent, and Mansell Moullin,[2] at 25 per cent This gives an average of about 20 per cent, or one case in five, which probably closely approximates the true figure, though the returns of the pathologic institute at Munich are still higher, nearly 40 per cent, or one in two and one half cases, a figure which should cause much thought to an unskilled operator The youngest patient who has come to my notice was 17 years of age, reported by Gardner and Cummings[3] A number of cases have been recorded in persons past 80

CARCINOMA

In the analysis of the appended cases, it will be easily seen that extensive carcinomatous infiltration of the prostate may exist without the presence of any of the symptoms commonly relied on to make a differential diagnosis between this condition and prostatic hypertrophy, for vesical retention and irritation is common to the two There is no change in the urine that may be relied on as significant of cancer of the prostate Judd[4] seems to think that an unusually low specific gravity is found in these cases, but this is true of any chronic obstructive disease of the total urinary tract, and bears no relation to cancer How much more difficult must it be to determine an accurate diagnosis when the whole process is entirely intracapsular and confined to a deeply situated glandular group well removed from both the urethral and the rectal zones When retention supervenes on vesical irritation, in months instead of years, after difficult and painful urination, mostly at night, when infiltration bullet-like, boardlike, leather-like or ivory-like is found in the prostate of a man who presents no symptoms of active syphilis or tuberculosis, and whose blood gives a negative Wassermann reaction, when the capsule of the gland has become adherent to the anterior pelvic fascia, or the fascia of Denonvillier, and the perirectal fascia, but the rectal tissues are no longer movable on it, and it has lost its motility in the pelvis, and the prostatic image to the sense of touch has become blended with that of one or both of the seminal vesicles, without the presence of acute inflammatory symptoms, when the central groove is blurred or lost, in the anterior two thirds of the prostate to the finger examining through the rectum over a steel instrument in the urethra, and added to this is loss of strength, and pain in the back, pain in the rectum, edema of the lower extremities, and neuralgia along the course of the sciatic, obturator or crural nerves, it is safe to make the diagnosis of cancer of the prostate

The stiffening of the walls of the posterior urethra gives to the introduction of the instrument to the bladder a peculiar resistance which is not that of the blocking caused by adenomatous nodules, but more of insufficiency of tubular space It is not unusual for a metallic or silk catheter or a cystoscope to creak in its passage through the narrowed and stiffened urethra, as if it were passing unoiled through a tube of harness leather An inlying catheter is never well borne Hematuria may or may not be present It always occurs early when the cancer starts in the prostatic urethra I have met two cases of this character recognized by means of the urethroscope In both the prostate was easily enucleated entire, there were no adhesions and no nests in the peripheral tissues Both had prompt local recurrence and metastasis, and each patient died within six months Hematuria is much more likely to occur in a congested hypertrophied prostate, but its origin should always be investigated with a cystoscope of small size of the irrigating type which will get by almost any obstruction in the posterior urethra if the stream of salt solution is turned on when the instrument is passing through the bulb

A urethroscopic examination of the posterior urethra should always be made when cancer of the prostate is suspected, as pointed out by Braasch[5] If the disease is on the anterior wall, it can be seen as shown in Case 3 of my appended report, if in the posterior lobe, the floor is elevated so that the sulcus, posterior to the colliculus, is wholly obliterated Bullous edema of the bladder neck or trigon is frequently observed The size of the prostate is no argument for or against its malignancy Small, hard, painful prostates, occurring in men in the fifth and sixth decades of life, should always be viewed with suspicion, as should also abnormal tenderness or pain in the rectum without the presence of hemorrhoids or inflammatory affections of the rectal walls or of the prostate Metastases often take place early to the lymphatics and the bones in men past the age of 45 Without a clear picture of lymphocytosis, pernicious anemia, Hodgkin's disease, tuberculosis, local infection or syphilis, any chronic swelling of the lymph glands, or persistent ostalgia should cause investigation of the prostate for cancer

Edema occurring about the penis, the rectum or the lower extremities, without definite renal or cardiac pathology, should always make one thoughtful of a probable carcinoma of the pelvic organs, and if, in the male, it be accompanied by pelvic pain and vesical irritability, should be sufficient cause to incite examination of the prostate for a primary cancer causing metastasis to the pelvic lymph glands and pressure on the iliac veins

Metastasis takes place at times undoubtedly while the disease process is confined within the capsular wall, but it is usual after the rupture of the capsule, an occurrence signaled by the cessation of nerve pressure and the sudden temporary relief from pain, for it to spread, especially when the origin is in the posterior lobe, to the seminal vesicles and the pelvis, the bladder being attacked nearly always late and through the posterior wall close to the ureteral mouths, where it is in contact with the loose cellular packing about the seminal vesicles This extension takes place along the ejaculatory ducts and the accompanying lymph channels, as was first pointed out by Young[6]

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[1] Socin and Burckhardt Die Verletzungen und Krankheiten der Prostata Deutsche Chirurgie Lieferung 53 Stuttgart 1902

[2] Moullin M Early Diagnosis of Cancer of the Prostate Brit Med Jour May 1909

[3] Gardner and Cummings Prostatic Carcinoma in a Youth California State Jour Med July 1914 p 279

[4] Judd Cancer of the Prostate Surg Gynec and Obst March 1915

[5] Braasch Factors Which Determine the Advisability of Prostatectomy St Paul Med Jour January 1915

Lundsgaard[7] reports a huge extensive lymphoma of the neck, operated on and found to be adenocarcinoma, in which, postmortem, a chain of fibroplastic carcinomatous enlarged glands led directly to a left-sided cancer of the prostate, in which the adenocarcinomatous parts lay in nests separated from each other by thick layers of fibromuscular tissue which had given no local symptoms during the patient's life time

According to Salinger,[8] cases of metastases have been observed in all of the gland groups of the head, neck and trunk, including the axillary I have seen metastatic nodules in the liver and in the splenic flexure of the colon from the prostate, others have found them in the suprarenal capsule, kidneys, spleen and pleura Von Recklinghausen first directed attention to the great frequency of secondary cancer in the bones, metastatic from the prostate, and this has become so much a matter of common knowledge with surgeons that it may be accepted as a rule, that no case of apparent primary carcinoma of a bone, in a man past middle life, should be operated on without investigation of the prostate gland, so as to avoid unnecessary surgery Yet sometimes the primary nodule in the prostate is so small and deeply placed that it is only discovered postmortem

When the patient comes for consultation with bloody foul-smelling urine and dysuria, terrifying tenesmus, or entire retention, with great difficulty in passing a catheter through the urethra and great resentfulness to its presence there, so that it can be retained for only short intervals, or not at all, with pains radiating out from the pelvis in all directions, with edema of the legs and perineum and a stone hard immovable prostate, *tender to the touch, not to be differentiated from* the surrounding pelvic organs, and enlarged superficial inguinal glands, the diagnosis of cancer of the prostate is easy but useless to make, for it is long past the time at which any valuable relief can be given to the patient

When is the time for diagnosis of cancer of the prostate, and what are the means to attempt its cure or relief? The time is while the growth of the carcinoma is still confined within the capsular walls of the gland, while we are not yet certain of its nature, while there is yet a chance that the growth may be one of the conditions from which we have to differentiate it The means are the surgical procedure of prostatectomy with complete removal of all the glandular elements, either after the method of Freyer, or that of Young The two give equally good results if performed properly Freyer reports eight cases in which the patients were alive and in good health, from three to ten years after operation, and others in which the results were not so good, but he states that, even though the disease should recur, it is a great consideration to the patient in the interval to be able to urinate normally, thus deferring for months, or even years, the establishment of a permanent fistula

Taking the figures of Albarran and Halle[9] as a basis, in which fourteen out of 100 prostates, apparently normal on removal, proved microscopically malignant, he believes he has operated on 150 carcinomatous prostates in this stage, and he has not known of more than six in which cancer subsequently affected the patient Given that this stage has passed and the cancer is not surmised, but the diagnosis reasonably certainly established, what is the best mode of procedure? The choice then has to be made between as complete enucleation, or dissection, as possible, conducted suprapubically, so as to run no risk of incontinence by destruction of the external sphincter, and subsequent sparking of the capsular fragments with the d'Arsonval current, as I have shown to be feasible and successful, in Cases 5, 6 and 7 of this report, or by the operation described by Young as a conservative partial prostatectomy, removing all the prostatic tissue that can be removed by a dissection on each side, and outside of the urethra, but within the capsule, to delay progress and give for a time relief from retention The ease with which such dissection can be accomplished will depend much on the cancer type These prostates are usually not very large, and if of the epitheliomatous type, they adhere to the capsule and present the same difficulties to removal that small prostates of the fibroid type do, while adenocarcinoma often separates easily from the capsule In rare selected cases, one may attempt total removal of the prostate and its capsule with the urethra beyond the triangular ligament, and the anterior two thirds of the trigon, either by the method described by Young, or by the method described by me As Young advises, such an operation should not be commenced if the trigon is infiltrated, the pelvic or iliac glands enlarged, the seminal vesicles, the membranous urethra, or the muscular wall of the rectum involved, or metastatic foci are known to exist The partial removal of a cancerous prostate, through the perineum, will result in incontinence in 50 per cent of the cases, but if a good free channel is obtained, the patient will live much longer and be much more comfortable, even if he does have to carry a urinal, if he cares for that kind of life I had one patient who lived for seven years, and he seemed to be happy Naturally, in some cases, interference with the knife would cause more rapid spread of the disease and should always be followed by a thorough sparking of the remaining parts with the bipolar high frequency current

When it does not seem wise to undertake any of these measures, or they are rejected, catheter life is the refuge as long as it is not painful or very difficult to pass a catheter When the patient becomes unhappy from pain, or infection supervenes, or recurrent epididymitis occurs, permanent drainage through a suprapubic fistula must be established For this purpose, many apparatus have been devised, the major number of which are cumbersome and unsatisfactory I think I have tried all that have been recommended in the past thirty years, each leaks at times, some, all of the time The cheapest and most satisfactory I have found to be a De Pezzer self-retaining catheter from 20 to 30 in caliber of the French scale, which is to be connected with a glass or metal bottle, carried in a special pocket in the underwear during the day and with a small hot water bag attached to the undershirt at night The bladder can be washed of debris through this tube once or twice a day, with a silver nitrate mercuric cyanid or permanganate solution The tube has to be replaced in from three to six months These

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[6] Young Hugh Cancer of the Prostate Ann Surg December 1909 Perineal Prostatectomy for Cancer ibid 1910 Carcinoma of the Prostate Keen s Surgery **6** 690

[7] Lundsgaard C Metastasierendes Prostatakarzinom Lymphomatosis simulierend Virchows Arch f path Anat 1913 **213**, No 1

[8] Salinger J F Beitrage zur Symptomatologie und Diagnose d Prostatacarcinom mit besonderer Berucksichtigung der fruh Diagnos

[9] Albarran and Halle Hypertrophie et neoplasie epitheliales de la prostate Ann d mal d org genito urin 1898

TABULATION OF CASE REPORTS

Case	Date	Physician	Age	Dysuria	Palpation Through Rectum	Cystoscopic Information	Kidney Function	Operation	Complications	Origin	Results	Alive	Metastases
1	11/13	F J Boesche	76	3 months	Some thickening over shaft of cystoscope	Congested bladder	Phthalein intravenous 11 min, 32% first hour	Suprapubic prostatectomy	Hemorrhage	Not clear	Comfortable one year ultimate retention	Yes	Sacral and lumbar vertebrae
2	11/15	MacGowan	63	With retention 3 months	Negative as to cancer	Negative	Phthalein intravenous 7 min 40% first hour	Suprapubic prostatectomy and d Arsonval sparking	Hemorrhage	Acini right lobe	Comfortable one year	Yes	Sacral vertebrae
3	12/13	Hamman	69	With retention 9 months	Negative as to cancer	Vesical outlet changed growths in urethra visible	Urea Marshall test, normal	Suprapubic conservative prostatotomy	None	Superior lobe injury silver catheter	Comfortable six months no return of retention	Died 9/15	Lumbar and sacral vertebrae
4	5/14	Dohman	70	10 years with retention 5 months	Hypertrophy negative as to cancer	Distortion of vesical outlet	Markedly uremic phthalein 17 min 20% first hour	Suprapubic prostatectomy in two stages	None	Acinus anterior lobe	Perfect in every way	Yes	None
5	8/14	Stockwell	76	4 months	Hypertrophy negative as to cancer	Distortion of vesical outlet cystitis follicular abscesses in posterior urethra	Phthalein intravenous 4 min 58% first hour urea, 18 for 24 hours	Suprapubic partial prostatectomy d Arsonval sparking	Stricture of urethra colon bacillus and aureus infection	Apparently anterior lobe injury silver catheter	Perfect in every way	Yes	None
6	10/14	Schnabel	70	6 months	Prostate very hard right vesicle indurated mesial groove normal to neck of bladder	Impossible to introduce cystoscope into bladder	Very uremic phthalein intravenous 20 min 18% first hour	Suprapubic cystotomy drainage 5 weeks prostatectomy d'Arsonval sparking	Multiple calculi stricture of urethra cancer colon	Not clear, wide spread	Perfect as to urination	Yes	Splenic flexure of colon liver pelvic bones, pelvic glands
7	1/15	Morrison	63	6 months	Prostate very hard	Trabecular bladder bullous edema	Phthalein, intravenous 47% first hour urea normal	Suprapubic prostatectomy d Arsonval sparking	None	Not clear	Perfect as to urination and sexual power	Yes	None
8	5/15	Violet	65	6 months	Negative as to cancer	Edema of trigon	Phthalein intravenous 5 min 35% first hour urea normal	Punch operation continuous suprapubic drainage	Colon bacillus infection	Near vesical neck	Strong able to work process retarded	Yes	Not certain

patients live from three months to seven years, and often during the early period lose all pain, put on flesh and gain strength, so that to the ordinary observer they appear to be in robust health In time, the process extending to the bladder mucosa brings ulceration with nerve exposure and hemorrhage, pain, cachexia, the necessity for opium, uremia from ureteral obstruction, and finally death

Radium Cure—There is but one authenticated case of apparent perfect cure of cancer of the prostate by radium cross-firing so far as I know, and that is the one of Pasteau and Degrais[10] The prostatic urethra is an ideal place for the use of radium, but the results so far obtained do not warrant its recommendation as a therapeutic agent

Some instances of what appear to be secondary carcinoma of the prostate are on record in which the distributing focus was the colon I have never met such a case, though I have seen one in which cancer of the descending colon and cancer of the prostate appeared to have developed simultaneously

Pathogenesis—Where it is so manifestly difficult macroscopically to differentiate cancer of the prostate, it is easy to understand how dissension has arisen among pathologists as to the pathogenesis of these growths, and the interpretation of microscopic sections made from them In borderline cases it is very difficult at times to decide without viewing many sections in series When we remember that "a normal acinus is lined with a single or an imperfect double layer of columnar epithelial cells," we have the basis from which we have to calculate our changes Given an abnormal stimulus, a hyperplasia of these cells occurs, and so long as the hyperplasia gives rise to types of cells conforming to those naturally existing in the acini and confined to the acini, producing lawful and regularly arranged progeny of the original cells, no malignant type can be said to exist, but when the hyperplasia is chiefly or exclusively of the undifferentiated cells of the outer row, marked, and their arrangement without alinement in relation to one another and to the basement membrane, lawless, the case is probably malignant, and if the stroma surrounding the acinus is invaded by the epithelial cells, surely so

REPORT OF EIGHT OPERATIVE CASES

I have arranged these cases in tabulated form, giving the ages, previous symptoms, duration, results of rectal and cystoscopic examinations, kidney function, character of operation performed, results obtained, complications and the apparent primary seat of the growth

Five of these patients were over and three of them were under 70 years of age

The one constant symptom was dysuria, which had been noticed in two cases for three months, in one for four months, in three for six months, in one for nine months, and in one for ten years In five (Cases 2, 3, 4, 5 and 8) the results of palpation made through the rectum over the shaft of the cystoscope were negative as to the presence of cancer In Case 1 there was some thickening in the posterior lobe In Case 6 the mesial groove could be palpated readily but the rest of the prostate was very hard In Case 8 the prostate was very noticeably hard over the shaft of the cystoscope Seven patients are still alive

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[10] Pasteau and Degrais Sur l emploi du radium dans le traitement des cancers de la prostate Jour d urol med et chir, Sept 15 1913

Patient 1 was comfortable for a year but now has dysuria and retention from extension of the growth to the surrounding structures and metastasis Patient 2 was comfortable for a year but now has dysuria Patient 3 was comfortable for six months but died in September, 1915, never having had a return of his retention Patient 4 is alive and in perfect health Patient 5 is in apparently perfect health and has full control of his bladder, there is no evidence either by palpation or by the cysto-urethroscope of cancer in the prostatic cavity or in the bladder Patient 6 has widespread metastases but urinates perfectly Patient 7 is apparently well Patient 8 is alive and comfortable, but wears a suprapubic drainage tube because of the presence of cancer in the bladder wall

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PRELIMINARY TREATMENT FOR PROSTATECTOMY IN UNFAVORABLE CASES [*]

HUGH H YOUNG, M D
AND
WILLIAM A FRONTZ, M D
BALTIMORE

Twenty years ago the mortality for prostatectomy was estimated at 20 per cent Today in some clinics it is less than 4 per cent What has brought about this marvelous change? More accurate diagnosis and better operative technic have, of course, done much to reduce the mortality — the substitution of accurate operations, under visual control, for destructive procedures done in the dark, being one of the principal factors

But much of the early mortality was due to complications, resulting from conditions existing before operation which were overlooked or neglected In 1898, one of us operated on a patient who came to the hospital in severe uremia A catheter could not be passed, suprapubic drainage was all that could be done, and the drainage afforded worked a seeming miracle In a few days consciousness returned, and within a few weeks prostatectomy was carried out without difficulty and with success Since then we have had a keen realization of the wonderful benefits of preoperative drainage in all prostatic cases in which the kidneys have been impaired by long-standing back pressure

At first we employed suprapubic drainage in all such cases, but before long we came to realize that the same result could be accomplished by an inlying catheter or even by intermittent, regular catheterization One of the most striking of these early patients was a man, aged 76, who was comatose and very septic, catheter drainage and infusion were not sufficient to abate his uremia, so we employed blood letting and simultaneous saline transfusion in the opposite arm, together with salt by rectum After carrying out these strenuous methods for several days, the infection and uremia both disappeared, and in six weeks a prostatic operation was successfully carried out

Employing the knowledge gained from similar experiences, we were the first to advocate systematic preparatory treatment in prostatic work where involvement of the kidneys, heart, etc, was present, and as a result in 1908 were able to report 128 consecutive perineal prostatectomies without a death, two of the patients being over 80 years and forty-three over 70 years of age

In the early years of this work, the physical condition of the patient, presence of high residual urine and evident symptoms and signs of poor kidneys were the principal indexes which guided us in our decision as to when to delay operation and to resort to preparatory treatment The phlorizin test and freezing point were experimented with without much help When the value of phenolsulphonephthalein was first shown in the urologic department in 1910, it was quickly applied to prostatic cases and found to give the index of renal impairment which we had previously been able only to surmise or guess at

As time went on, the desirability and value of additional tests for the blood, heart, etc, have been demonstrated, so that now a complex but remarkably helpful series of routine tests are employed in almost all cases

Too great care cannot be exercised in the study of these cases preliminary to operation Abnormalities of one kind or another are the rule rather than the exception, and the surgeon who disregards or overlooks these danger signals fails to reduce his mortality to the minimum A careful physical examination, which should include a blood pressure reading, is of course essential in every surgical case Of special importance in prostatic hypertrophy is an examination of the urine, the determination of the residual urine and a study of the renal function

If on examination no organic disease is demonstrable, the blood pressure normal, the urine free from pathologic elements and the renal function satisfactory, an early operation can be carried out with the realization that, from a clinical standpoint, the patient is an excellent surgical risk There is one important exception, however, which should be emphasized The presence of a large residual urine, even though there be no infection and the renal function fair, furnishes a considerable risk if operation be performed without preparatory treatment These are patients often with atonic bladders, dilated ureters and varying grades of hydronephrosis, and without preliminary catheterization, the danger of acute uremia and ascending infection is greatly increased

Unfortunately an ideal physical condition is the exception, and the risks may be classified as follows

I CASES WITH RENAL IMPAIRMENT

This is most often due to back pressure, which usually leads to distention of the renal pelves and thinning of the renal cortex, the degree of lesion being dependent on extent and duration of the back pressure In many cases infection has been added to the renal lesion, producing varying grades of pyelitis, pyelonephritis and pyonephrosis In some cases a chronic nephritis is present without demonstrable infection

Renal impairment may also result from cardiac insufficiency To determine this renal impairment our most valuable means is

A *The Phenolsulphonephthalein Test*—Space in THE JOURNAL does not permit any extensive description Our routine is to make one test on admission, if possible with the first catheterization, as important functional changes may occur immediately after that If the residual urine is large we may expect a drop in the kidney function until the kidneys adjust themselves to a catheter life (absence of back pressure) Semiweekly phenolsulphonephthalein tests are taken, and as a rule a steady improvement is shown (see cases) until a stationary period is arrived at

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[*] From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital

[*] Read before the Section on Genito Urinary Diseases at the Sixty Seventh Annual Session of the American Medical Association, Detroit, June 1916

[*] Owing to lack of space this article is abbreviated in THE JOURNAL The complete article appears in the Transactions of the section and in the author s reprint

If the first phenolsulphonephthalein test is good, the amount of residual urine not great (say, not over 200 c c) and the general condition good, operation is usually not delayed

If the phenolsulphonephthalein test is poor (appearance time over fifteen minutes, excretion first hour under 30 per cent), the patient is put on preliminary treatment while further studies are made

B *Blood Urea*—This is determined in cases with poor phenolsulphonephthalein excretion, and in most of these cases shows no abnormal increase of the urea in the blood In such cases catheter drainage with relief of back pressure will usually result in rapid improvement, as shown by successive phenolsulphonephthalein tests A high blood urea generally goes with a bad phenolsulphonephthalein test and shows a dangerous condition, though this, too, often rapidly disappears on preliminary treatment (catheter, water, etc)

C *Acidosis*—In cases of impending uremia a marked retention of acid salts may be present in the blood This is discovered by determination of the hydrogen ion concentration of the blood or by estimation of the carbon dioxid content of the alveolar air A fair index to the condition may be seen in the amount of sodium bicarbonate required to make the urine alkaline In the normal person 10 gm will render urine alkaline in a few hours

Preliminary Treatment—This may be classified as follows

(*a*) Relief of Urinary Retention This is very desirable when the residual urine is large in amount (over 250 c c) even though the phenolsulphonephthalein test is good In such cases catheterization twice daily for a few days may be all that is necessary If the phenolsulphonephthalein test is still good and the general condition good, and the infection present is not acute (no dysuria, acute urethritis, epididymitis or suggestion of ascending infection, fever, etc , present) prostatectomy may usually be then carried out safely In cases with sterile urine, acute infection is to be guarded against by irrigations and injection of small amounts of 5 per cent argyrol at each catheterization If, notwithstanding every precaution, infection does occur, the patient should be watched several days to see that the above mentioned complications do not occur

Where the residual urine is very large (say, over 400 c c), and particularly when the phenolsulphonephthalein test shows definite renal impairment, catheterization from four to six times daily is indicated to prevent recurrence of back pressure, and allow the kidneys to improve In such cases an inlying or retained catheter may be preferable, particularly if catheterization is difficult or quite painful The catheter should be changed at intervals of from one to three days (depending on infection and irritation), and the urethra should be injected with 5 per cent argyrol and "rested" several hours before a new catheter is inserted A small soft rubber catheter is preferable to a gum coude, but sometimes will not pass The inlying catheter may be closed with a clip or cork and emptied at intervals, or allowed to drain in a bottle, the patient being up and outdoors if possible In very acute urethritis and epididymitis a retained catheter should not be employed Epididymotomy may be required, and intermittent catheterization until acute symptoms subside Sometimes suprapubic drainage is indicated in such cases, but our experience shows that it is certainly not indicated as a routine procedure, and that even patients with severe renal impairment from prostatic back pressure can almost always be got in excellent condition for prostatectomy by catheter drainage

(*b*) Diuresis The use of water in large amounts is very important, to keep kidneys active, expel uremic products, keep down infection and irritation, and assist in restoring good renal function We give usually 6 ounces every hour, 3 quarts daily, especially in cases with lowered renal function In severe cases salt solution by rectum or by infusion is employed — often several quarts daily — with due regard to the heart In severe cases of uremia, transfusion and even simultaneous bloodletting have been employed with almost marvelous effect

(*c*) Urinary Antiseptics Hexamethylenamin is given in doses of 15 grains three or four times daily unless it causes irritation of bladder or gastric disturbance In alkaline urines, acid sodium phosphate or sodium benzoate in large doses (at separate times from hexamethylenamin) is also given In cases of dysuria, methylene blue (1 grain three times a day) may relieve the irritation, though diuresis and argyrol injections usually suffice

(*d*) Treatment of Acidosis In the acidosis accompanying the severer forms of renal destruction, sodium bicarbonate should be given in large doses until the urine becomes definitely alkaline This may be given by mouth or by rectum, but in the advanced cases the best results follow its use intravenously Glucose and lactose, the former by infusion, the latter by rectum, also form a valuable adjunct in the treatment of these cases In these cases and others showing cumulative phenomena, free catharsis is often followed by most beneficial results

As illustrating the splendid improvement in these renal types following the institution of preparatory treatment, these cases are cited

Case 1 —A L R, man, aged 50 was admitted April 14 1915 There had been obstruction of urination of two years duration due to hypertrophied prostate of considerable size Residual urine was 850 c c Phenolsulphonephthalein test appearance time twenty-five minutes, first hour, 8 per cent Blood urea was 1 06 per liter (normal, 0 5 gm) Mitral insufficiency, blood pressure, 210 Preparatory treatment was instituted Remarkable improvement was obtained, as shown in the tabulation

TABLE 1 —PHENOLSULPHONEPHTHALEIN TESTS BLOOD UREA DETERMINATIONS AND BLOOD PRESSURE READINGS IN CASE 1

Date	Appearance Time Min	First Hour %	Second Hour %	Total %	Blood Urea Gm	Blood Pressure
Apr 6						
Apr 8	26	8	6	14	1 06	210/110
Apr 10	18	12	10	22		185/105
Apr 12	20	14	11	25		160/98
Apr 15	19	18	15	33	0 80	170/85
Apr 24	15	24	11	35	0 64	
Apr 29	13	23	12	35	0 55	150/80
					0 47	

The patient was operated on the following day, a perineal prostatectomy being done The convalescence was uneventful and he left the hospital in excellent condition twenty days later

Case 2—E C W, man, aged 47, admitted Sept 30, 1915, with symptoms of urinary obstruction of several years' duration, had *nocturnal incontinence* He was toxic, with marked edema The prostate was very large Residual urine was 1,125 c c, specific gravity, 1 004 No phenolsulphonephthalein during first hour Blood urea 1 gm per liter Preparatory treatment was followed by wonderful improvement (Table 2)

TABLE 2—PHENOLSULPHONEPHTHALEIN TESTS IN CASE 2

Date	Appearance Time Min	First Hour Per Cent	Second Hour Per Cent	Total Per Cent
Sept 30		0	13	13
Oct 2	14	14	25	39
Oct 6	10	12	22	34
Oct 10	10	27	19	46
Oct 15	10	28	16	44
Oct 17	10	20	20	40
Oct 19	10	28	20	48
Oct 24	10	40	19	59
Oct 26	10	37	21	58

The improvement in this case was very striking, the patient gaining daily in strength and putting on 25 pounds in weight during the four weeks' preliminary to operation Perineal prostatectomy was performed, October 27 Recovery was uneventful Patient was discharged well in thirty days

Comment—These two cases showed a marked improvement following the institution of preparatory treatment The first case is one of chronic nephritis with hypertension complicated by infection and back pressure, and shows a gradual increase in the phenolsulphonephthalein output to a point at which it remained stationary The inverse parallelism between the phenolsulphonephthalein and the blood urea is also well illustrated We have noted not infrequently in such cases a marked lowering of the blood pressure following the establishment of free urinary drainage and rest in bed This is rather strikingly shown in this case The second case is apparently one of functional impairment due entirely to back pressure, and shows splendidly the recuperative power of the kidney following catheter drainage, the renal function gradually returning to normal

II CASES WITH CARDIAC LESIONS

The determination of the cardiac risk often involves careful and prolonged study Valvular and myocardial change is often seen in these cases, but so long as the condition is fully compensated, the risk of operation is minimal Where there are signs and symptoms of a break in cardiac compensation, however, operation is absolutely contraindicated and should not be considered until complete restoration of function has been established In these cases, frequent physical examinations, blood pressure records, fluid and urine charts and in the more obscure forms, electrocardiographic studies, are valuable in following the course of the condition

The treatment of a break in compensation, whether it is due to valvular or to myocardial disease, is much the same Rest in bed, digitalis and, in cases in which edema is a prominent feature, limitation of the fluid intake and free catharsis are indicated The surgeon acts wisely in following the advice of a medical consultant in these cases, and at the Brady Urological Institute there is a whole time medical man who has charge of all such cases and the borderline work between medicine and urology

The following cases show the value of preliminary treatment in this type of risk

Case 3—W H H, aged 67, admitted Oct 21, 1913, had prostatic hypertrophy Residual urine was 500 c c Heart was enlarged, irregular, mitral insufficiency Electrocardiogram showed marked hypertrophy of left ventricle Auricles had ceased coordinate contractions and were in a state of *fibrillation Blood pressure was 130 Treatment consisted* of large doses of digitalis, rest in bed, catheterization, etc The improvement in heart was steady and in one month the condition was vastly changed

TABLE 3—PHENOLSULPHONEPHTHALEIN TESTS IN CASE 3

Date	Appearance Time Min	First Hour Per Cent	Second Hour Per Cent	Total Per Cent
Oct 22, 1913	11	30	8	38
Oct 29, 1913	10	45	13	58
Nov 4, 1913	8	40	15	55
Nov 20 1913	9	48	12	60

November 21, perineal prostatectomy was performed Electrocardiographic tracings taken during operation showed only an occasional extrasystole Three days after operation, the pulse again became rapid and irregular, responding promptly to digitalis There was no further irregularity, and the patient was discharged, December 13 An electrocardiogram taken December 20, one week after discharge showed that the heart was contracting in normal manner There was also great improvement in general health and strength

Case 4—A B aged 66, admitted, Dec 1, 1915, had prostatic obstruction for three years, associated with headaches, dizziness dyspnea, cardiac palpitation and angina The pulse was weak cyanotic and dyspneic, the heart was enlarged greatly Presystolic gallop rhythm and systolic blow at apex and base Blood pressure, 165/80 Prostate considerably enlarged Residual urine, 120 c c, specific gravity, 1 016, albumin pus and bacilli

TABLE 4—PHENOLSULPHONEPHTHALEIN TESTS IN CASE 4

Date	Appearance Time Min	First Hour Per Cent	Second Hour Per Cent	Total Per Cent.	Blood Pressure
Dec 2, 1915	15	16	23	39	160/85
Dec 5, 1915	10	39	19	58	165/95
Dec 7 1915	10	40	21	61	140/80
Dec 12, 1915	10	40	18	58	

In addition to the catheter drainage, the preparatory treatment in the case consisted chiefly of digitalis and nitroglycerin for the anginoid attacks The heart compensated promptly, and perineal prostatectomy was successfully carried out, December 13

Comment—These two cases illustrate a rather extreme type of cardiac risk, and it is doubtful whether an immediate operation could have been performed successfully With the return of cardiac compensation, however, the risk was relatively slight, and both patients went through operation remarkably well The blood pressure raising effect of nitrous oxid rather contraindicates its use in these cases, and we are of the opinion that ether is the anesthetic of choice in such cases, but in other cases we almost invariably employ nitrous oxid and oxygen, with a small amount of ether

III CASES WITH CARDIORENAL DISEASE

The study of cardiorenal disease resolves itself into a determination of the relative responsibility of the heart or kidney for the clinical and laboratory findings As has been pointed out, in pure cardiac disease, the impairment of renal function may be the result of passive congestion, and if compensation is established, the renal function returns to normal In these cases, in which the cardiac disease is alone at fault, the phenolsulphonephthalein output is rarely alarmingly low, nor is the retention of urea much above the upper limits of normal Where the burden of responsibility rests with the kidney, however, its functional value, as determined by phenolsulphonephthalein, may approach zero and the urea retention may be at a very high level Marked *improvement as regards the renal and cardiac* condition may follow promptly the institution of catheter drainage and other preliminary measures In such a case the affair is largely a functional one, the renal impairment resulting from urinary obstruction, the cardiac condition being secondary to the renal one

In other cases giving little or no evidence of urinary retention, where the elements of back pressure and infection can be eliminated, changes in renal function fail to keep pace with cardiac improvement, and the condition is one of true nephritis

Many combinations are, therefore, possible, in one instance, the heart alone may be responsible, the improvement in both the heart and kidney running parallel, in another the renal condition is primary, the degree of response to treatment depending on the character and extent of the renal lesion

The question to decide in the treatment of these cases is the factor primarily responsible for the condition If the cardiac disease is primary, rest in bed, courses of digitalis and, in some cases, limitation of the fluid intake may bring about a prompt return of compensation In the cases in which the preponderance of fault lies with the kidney, the establishment of free urinary drainage, diuresis, regulation of the diet, and in the event of urea retention, free catharsis may be of benefit

There will remain, however, a certain number of cases in which the outlook is most discouraging and the treatment long and tedious The forcing of water, so essential a part of the treatment in certain renal types, may be contraindicated by the cardiac condition, and in others, measures directed toward the relief of the heart may be antagonistic to renal improvement

As an example of a rather extreme type of cardiorenal risk, and as showing how prolonged the preparatory treatment may be, the following case is cited

CASE 5—H D C aged 67, admitted Sept 16 1913 had prostatic obstruction ten years, attacks of dyspnea, dizziness headaches, nausea and vomiting, one year, paradoxical incontinence one month, and chronic bronchitis dilated hypertrophied heart, mitral and aortic insufficiency Blood pressure was 175, residual urine 825 c c albumin, casts pus and bacilli

TABLE 5—PHENOLSULPHONEPHTHALEIN TESTS AND BLOOD UREA DETERMINATIONS IN CASE 5

Date	Appearance Time Min	First Hour Per Cent	Second Hour Per Cent	Total Per Cent	Blood Urea Gm per Liter
Sept 16 1913	40	10	5	15	0 820
Sept 18 1913	40	15	5	20	
Sept 21 1913		5	3	8	
Sept 23, 1913					0 980
Oct 8 1913	58	3	7	10	
Oct 16 1913	70	Trace	10	10	
Oct 31 1913	60	9	9	18	
Nov 10 1913	30	7	2	9	
Nov 20 1913					0 800
Nov 29 1913		4	7	11	
Dec 10 1913	20	18	7	25	
Dec 13, 1913	30	12	14	26	0 360
Dec 15 1913	18	14	8	22	

The preparatory treatment in this case was very prolonged and consisted chiefly of catheter drainage, the forcing of water and the use of stimulants as indicated During the first four weeks, the patient was uremic, on one occasion having convulsions To this difficulty were added frequent breaks in cardiac compensation On two occasions the life of the patient was apparently saved by the prompt use of strophanthin and camphorated oil With improvement in the cardiac condition, allowing the use of water in larger amounts, the phenolsulphonephthalein output increased, remaining quite stable, and the blood urea was reduced to within normal limits After thirteen weeks preparatory treatment, a perineal prostatectomy was carried out Recovery was uneventful The phenolsulphonephthalein test on discharge showed an appearance time of twelve minutes, and output for the first hour 30 per cent and second hour 10 per cent

Comment—This case shows what can be accomplished by preliminary renal and cardiac treatment in very bad cases Examination one year after operation showed the cardiac and renal condition still greatly improved

IV CASES WITH HYPERTENSION

Arterial hypertension may exist independently of cardiac and renal disease, and moderate grades of it are seen without any discoverable organic change The condition is most often associated, however, with renal or cardiovascular lesions, and its chief interest in this connection lies in the determination of its causation If the responsibility rests with the kidney, the outlook will depend on the extent of the renal change and the degree of associated cardiovascular disease As a condition per se, it rarely contraindicates prostatectomy, although in the severer forms, particularly when combined with marked arteriosclerosis, the risk of operation may be a very serious one

The use of blood pressure lowering drugs in these cases is often dangerous, and at best the result is transitory Rest in bed and the usual preliminary treatment in cases with associated back pressure symptoms are often productive of permanent results We have seen frequently rather marked cases of hypertension occurring in individuals with long standing urinary retention and the usual back pressure phenomena With rest in bed and catheter drainage, marked lowering of the blood pressure has frequently been coincident with improvement of the renal condition

The following cases illustrate how uncertain the prognosis may be in this type of risk

CASE 6—M E, aged 60, admitted Feb 21, 1916 had prostatic obstruction for six months and vesical calculus No residual urine Bladder capacity 90 c c Specific gravity of urine, 1 016, no casts, faint trace of albumin Appearance time of phenolsulphonephthalein, ten minutes, first hour, 48 per cent, second hour, 15 per cent Physical examination excellent except slight hypertrophy of left ventricle and blood pressure of 200 Patient was thought to be an excellent surgical risk, and prostatectomy was performed, February 28 After the patient's return to the ward it was noticed that he remained unconscious, and examination showed a left sided hemiplegia and evidently a cerebral hemorrhage which occurred during the anesthesia before or during the operation

CASE 7—G R, aged 68, admitted Sept 13, 1913, was perfectly sound in every respect except for hypertension The treatment preparatory to operation was rest in bed and restriction of fluid intake to 1 500 c c The phenolsulphonephthalein tests and blood pressure readings follow

TABLE 6—PHENOLSULPHONEPHTHALEIN TESTS AND BLOOD PRESSURE READINGS IN CASE 7

Date	Appearance Time Min	First Hour Per Cent	Second Hour Per Cent	Total Per Cent	Blood Pressure
Sept 13 1913	22	40	10	50	210
Sept 15, 1913	11	53	15	68	
Sept 16 1913					210
Sept 18 1913					200
Sept 19, 1913					205
Sept 20 1913					210
Sept 21 1913	8	48	18	66	210
Sept 22, 1913					210

Perineal prostatectomy was performed September 22 Recovery was uneventful

Comment—The determination of the degree of risk in a given case of pure hypertension is difficult, if not impossible Advanced grades of cerebral arteriosclerosis may be present with very little change in the peripheral vessels, and a radial artery whose wall is barely palpable is no surety against a cerebral catastrophe That sudden elevation in blood pressure may result in fatal hemorrhage should constantly be borne in mind, and for this reason we believe ether to be preferable to nitrous oxid as an anesthetic in these cases The complication cited in the first case, however, is relatively uncommon, and in our series of nearly 1,000 perineal prostatectomies, it has occurred but twice

V CASES WITH INFECTION

The majority of patients requiring operation for the relief of prostatic obstruction have urinary infection and in a recent series of ninety-four cases, the urine of sixty-six, or 70 per cent, contained pus and microorganisms The mere presence of bacteria in the urine without localizing signs is not alarming, but the occurrence of an acute process cannot be watched too carefully Acute infections of the epididymis and urethra immediately call for a suspension in the use of the retention catheter The majority of these cases can be tided over the course of the infection by interval catheterization, and the condition clears up promptly as a rule In some instances the process is progressive, and if drainage of the bladder is necessary, a suprapubic cystostomy should be done Many of these acute infections are secondary to the retention catheter, and can be prevented if sufficient care is exercised Frequent changing of catheter, the substitution of interval catheterization in some cases, urethral and vesical injections of 5 per cent argyrol and irrigations will do much toward diminishing the frequency of these complications

As a fair statement of what can be accomplished by means of careful preparatory treatment, we think we may take the first years' work in the Brady Urological Institute from January, 1915, to January, 1916 During this time there were ninety-four cases in which prostatectomy was carried out, ninety by the perineal route and four suprapubically, with only one death, this patient being 93 years of age and dying of cerebral thrombosis on the thirteenth day after operation An analysis of these cases is as follows The average age was 67, the youngest 46, and the oldest 93 years of age There were three over 80, fifteen over 75, twenty-three over 70 During this period every patient who came to the hospital suffering with pronounced obstruction from prostatic hypertrophy was operated on, so that there was no selection of cases Fifty-three cases required considerable preliminary treatment, the longest being a period of sixty days, five cases required preliminary treatment over four weeks, nine over three weeks, twenty-three over two weeks, thirty-nine over one week, and eleven less than one week The following analysis of the phenolsulphonephthalein records shows the splendid improvement which was obtained by means of preparatory treatment

In the series of ninety-four cases, fifty-one, or 54 per cent, required preliminary catheter treatment, and of these, thirty showed on admission an output of less than 30 per cent phenolsulphonephthalein for the first hour, and nineteen an output of less than 20 per cent The preparatory treatment varied from four to sixty days, and at the time of operation, of these thirty cases, only ten had a first hour phenolsulphonephthalein of less than 30 per cent, and only one less than 20 per cent

There were numerous cardiac lesions found in this series, both myocardial and valvular in character, and two extremely severe, one, a man 75 years of age, with a very bad heart from myocarditis, and another aged 66, whose case had been cited above In regard to the cardiac cases we may say that almost every case, even those of very severe degree, can finally be got in sufficiently good condition for perineal prostatectomy under ether anesthesia, this anesthetic on account of its stimulating effect being preferable to anything else in cardiac cases We are firmly convinced that these patients should not be operated on by spinal anesthesia

High blood pressure was moderately common in this series of ninety-four cases, there being forty-two over 150 and fifteen over 170 In four cases the blood pressure was 200 or more, yet operation was successfully performed in each of these cases Considerable care was taken in preliminary treatment in these cases, as described above

A survey of these ninety-four patients, many of whom were very aged and infirm, shows that with proper care, perineal prostatectomy may indeed be called a benign operation This, we believe, is due to various facts The wound is extravesical, the drainage dependent, and the absorption of septic materials unquestionably less Abdominal distention and other complications, which are not infrequently present after suprapubic prostatectomy, are very much less frequent after the perineal operation The ability of the patient to get out of bed in a very few days, and the ease with which hemorrhage can be controlled, either by ligation of bleeding points at operation or packing, are very greatly in favor of the perineal route These facts are mentioned because we believe that in severe cases, the choice of operation has almost as much to do with the ultimate result, particularly the mortality, as the preliminary treatment

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MECHANICS OF FRACTURES OF THE OS CALCIS

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Fractures of the os calcis are due to two factors direct violence by a fall on the sole of the foot, and a strong contraction of the gastrocnemius, making a sudden upward pull, thereby putting tension on the Achilles tendon We have to deal here with a short fragment attached to one of the strongest muscles of the body, tending to displace it gradually even further than it was carried by force of the direct violence, and in the same direction (from *C* to *D*, Fig 1) This short posterior fragment forms the posterior third or quarter of the longitudinal arch of the foot (*E* to *H*), and, when displaced upward, lowers the arch of the foot (changing *CG* to *DG*), at the same time stretching or tearing the bowstring which holds this arch normally (*GH*) and is attached to the anterior surface of the posterior fragment of the os calcis, running forward to its fan-shaped anterior attachment around the metatarsal articulations The result of the tearing or laceration of the plantar fascia, which was referred to as the bowstring of the arch of the foot, results in a flattening of the anterior portion of the arch of the foot, which, in turn, and in conjunction with the lowering of the posterior portion of the arch due to fracture, allows the foot to evert (bringing *E* and *A* nearer to each other), thereby bringing the fractured surface of the os calcis upward and outward toward the external malleolus (*A* to *B*)

This results, if allowed to progress to the deposition of callus around the fracture, in mass of callus forming just behind and below the external malleolus (between *A* and *B*), pinching the soft tissues between two bony surfaces, and giving severe pain The foot, thus being everted, causes the weight line which normally should fall on the middle metatarsal bone to fall on the first metatarsal bone or inside of it, further throwing a strain on the already lacerated ligaments of the longitudinal arch and causing further flattening of the foot

Fortunately Nature has provided an easy way to rid us of the upward pull of the gastrocnemius by making the Achilles tendon in such a way that it heals readily after subcutaneous tenotomy without further surgical procedure, and is firmly united by the time the fractured bone has become solid

It is a simple procedure to introduce a tenotome under the skin and completely sever the Achilles tendon, thereby ridding us of the only tendency to displacement of the posterior fragment, which can now be replaced with the assurance that there will be no displacement on account of muscular action If the fracture is impacted the foot should be placed over an orthopedic block (Fig 2) with one hand above the heel and the other over the metatarsal bones, and the impaction broken up, forcing the heel and toe down and toward each other This increases the arch and at the same time moves the fractured anterior surface of the posterior fragment downward and inward, increasing the distance between it and the external malleolus The fragment replaced, the foot can then be put in a plaster cast in strong inversion (Fig 3) further removing the line of fracture from the external malleolus Before the cast is dry, the base of the thumb should be placed in the arch of the foot (Fig 4) holding the soft plaster up against it In this way there is an overcorrection, bringing the ends of the lacerated plantar fascia into apposition, and allowing the traumatized ligaments of the sole of the foot to contract before the cast is removed

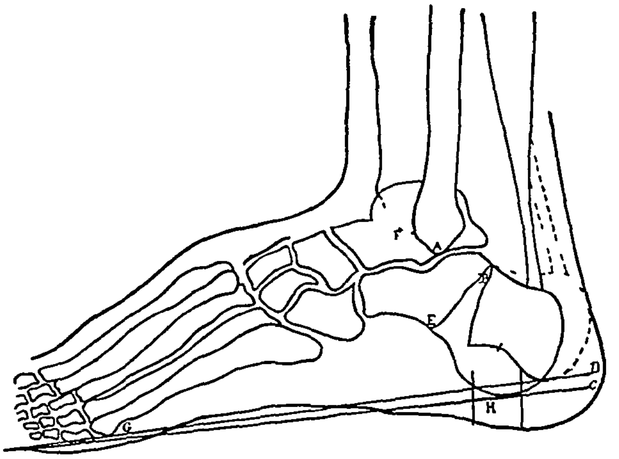

Fig 1—*A* external malleolus *B* site of fracture and callus formation which is brought close to *A* by a combination of falling of the arch and eversion of the foot *H* to *G* attachments of plantar fascia lacerated at time of fracture of the os calcis *C* to *D* distance the arch is lowered when the posterior fragment of the os calcis is pushed up An eversion of the foot causes the internal malleolus *F* to be brought nearer the ground it also throws the weight line drawn from the anterior superior spine of the ilium through the middle of the patella to fall over the first metatarsal or inside of it rather than on the middle metatarsal as it normally should

The cast should be allowed to remain on the foot for at least four weeks, and the patient admonished not to rest any weight whatsoever on it until two months have elapsed When the cast is removed, dry or moist heat applications with expert massage should be instituted to increase the circulation in the ligaments and fascias of the sole of the foot, establish motion in the ankle joint, and loosen the adhesions about the Achilles tendon At the end of the two months the patient should be encouraged to put weight on the foot gradually, care being taken to notice whether the callus around the fracture is solid enough so that it will not allow angulation of the posterior fragment

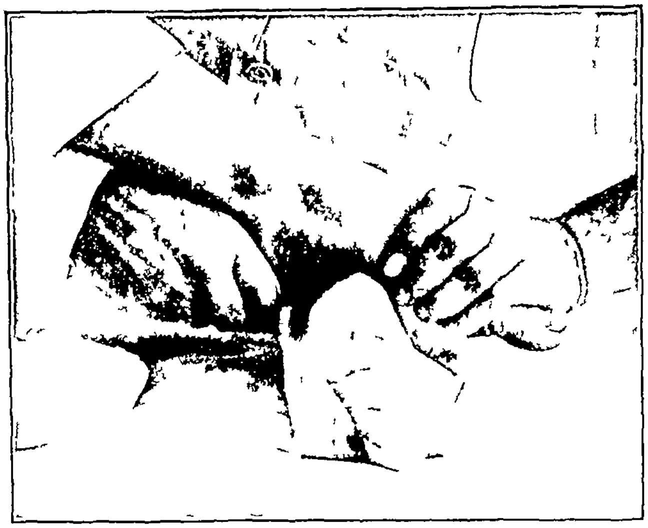

Fig 2—The proper position of the hands on the foot in bringing the heel and the toe close together over an orthopedic block and the reduction of fracture of the os calcis If impaction is too firm to be broken up in this way the foot should be placed in a sand bag and the posterior fragment struck a sharp blow with another sand bag which will relieve the impaction

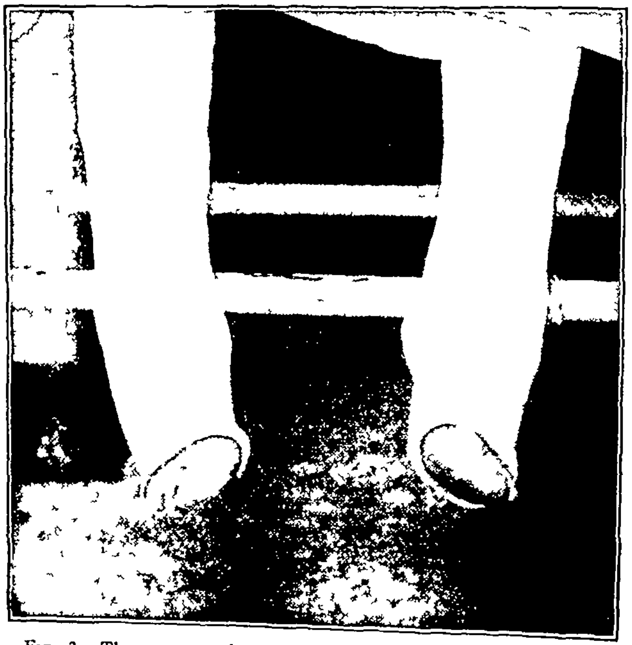

Fig 3—The position of the feet in plaster Strong inversion with pressure under the instep

The ligaments in the sole of the foot being weak and having a tendency to allow the foot to evert, the sole and heel of the shoe should be built up from one-eighth to one-quarter inch on the inside of the foot, so that the body weight will fall on the flat outside portion of the foot and not overtax the weakened ligaments of the arch The arch may be supported by adhesive plaster strapping in conjunction with a felt pad either held on by the straps or sewed on an insole, and placed in the shoe in such a manner as to support the longitudinal arch (Figs 5 and 6)

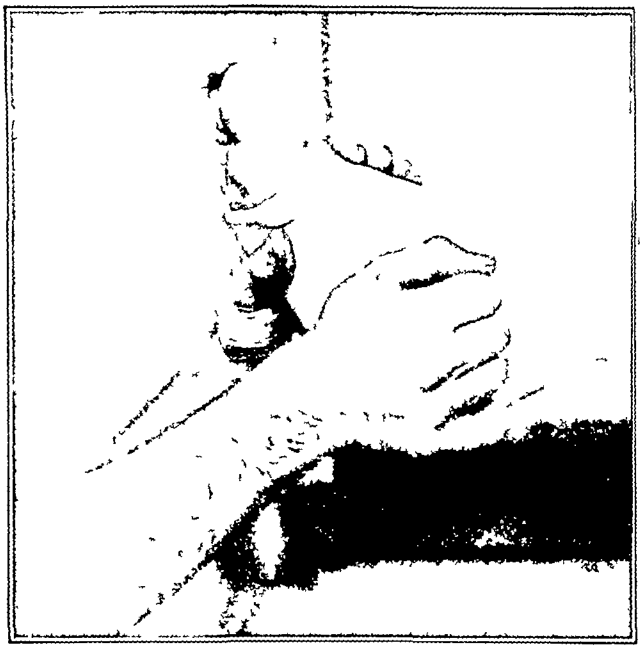

Fig 4 —Proper position of the hands in inverting the foot and putting pressure under the arch while plaster is still soft Care should be taken that the hand on the outside of the foot in this case the left, does not press the plaster against any bony points

The felt pad has proved much more satisfactory in the treatment of a weak foot than the metal plate, since it allows a moderate amount of strain to fall on the fascia, and being a spongy, elastic substance, it constantly massages the sole of the foot and increases the circulation The metal plate acts as a rigid splint, relieving the ligaments of all strain, and thereby allowing them to weaken and to atrophy from lack of use

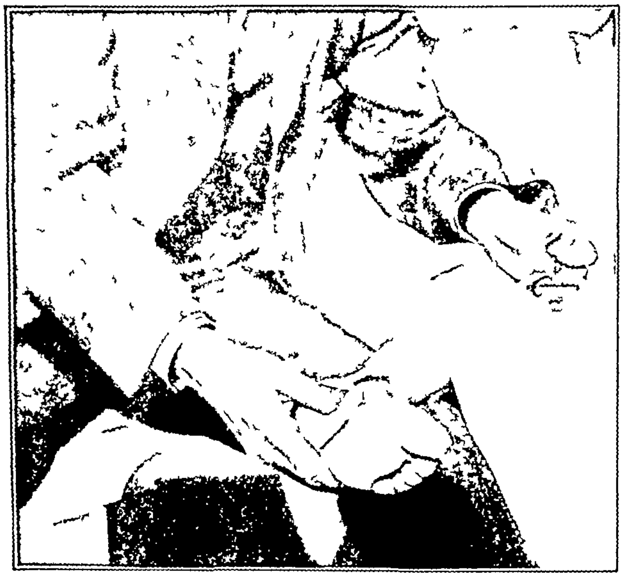

Fig 5 —Inversion of the foot with felt pad under the arch for support showing the method of using adhesive plaster

Under this treatment, which has been extremely successful in my hands, we should have no permanent disabilities from fractures of the os calcis There is no fracture in the body known which is more commonly overlooked and which will give more painful disability than a fracture of this kind, unless the mechanical details of the treatment are looked after carefully, and there is none easier to treat or which gives better results than this fracture, if promptly diagnosed and correctly treated It is essential to examine with the Roentgen ray every patient who has sustained a fall on the sole of the foot, especially when there is pain and swelling underneath and posterior to the external and internal malleolus

No fear should be felt in severing the Achilles tendon, since this structure has been cut subcutaneously by numerous men over a period of many years and practically never has failed to unite and refunctionate even in persons over 60 years of age, and it is absolutely impossible to hold the short posterior fragment of the fractured os calcis in proper apposition to the anterior portion without doing away with the pull of the muscles on the Achilles tendon

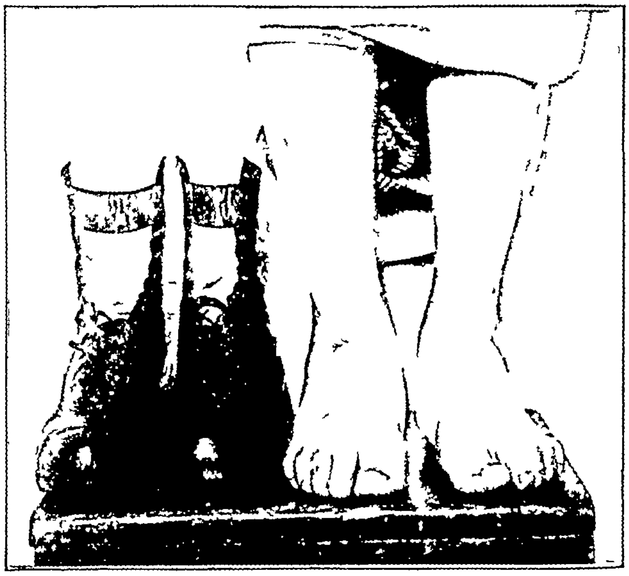

Fig 6 —Completed strapping of the feet with felt pad between adhesive and arches of the feet The adhesive plaster is started on the upper outer surface of the foot, and brought downward and inward with the foot in strong inversion, bringing the plaster upward and outward on the outer surface of the legs

30 North Michigan Avenue

Transportation of Milk—The milk ordinance of the city of Chicago, adopted in 1912, contained certain regulations with reference to the pasteurization of milk which were upheld by the state supreme court Provisions of this ordinance required that the milk should be transported in sealed cans and prohibited bringing milk into the city the temperature of which was above 55 F In a suit brought against a railroad company violating this provision with reference to temperature the state supreme court decided that unless it could be shown it was possible for a railroad company to ascertain the temperature of the milk without having access to the interior of the cans, the ordinance was unreasonable and not enforceable The court held however that a city has the right to protect the health of its citizens by reasonable regulations governing the transportation and sale of milk The decision in full is printed in *Public Health Reports,* January 19

FURTHER OBSERVATIONS ON THE USE OF THORIUM IN PYELOGRAPHY*

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BALTIMORE

Since the publication of the preliminary report[1] on the use of thorium solution as a pyelographic agent, many experimental investigations as to its pharmacologic action, and much clinical evidence after a year's experience in its use have led to the conclusion that it fulfils all the conditions requisite for an ideal pyelographic medium These conditions are that the solution be nontoxic (within the ordinary limits of usage) nonirritating, opaque to the Roentgen ray, giving not only a good shadow but one of clear delineation, possess a marked degree of fluidity, and be inexpensive

It is a well-known fact that the degree of opacity of an element to the Roentgen ray is directly proportional to its atomic weight On this account, thorium, being next to the heaviest known element, seemed worthy of careful study After an exhaustive investigation of its different salts and the various combinations into which they may enter, it was decided that the original solution, prepared in the manner suggested, and containing, as it does the double citrate of thorium and sodium together with an excess of sodium citrate, and some sodium nitrate was by far the best combination for use in pyelography The solutions used contain 10 and 15 per cent of thorium in the form noted, the 10 per cent solution being used for cystograms, and the 15 per cent for ureteropyelograms The 15 per cent solution contains approximately 15 per cent of thorium nitrate, about 9 per cent of sodium nitrate, and 21 per cent of sodium citrate, the thorium being probably in the form of a double citrate of thorium and sodium, and not occurring as the nitrate

Although solutions of thorium nitrate and thorium chlorid alone cannot be used clinically on account of their astringent and irritant action, and also the fact that they precipitate insoluble salts when brought in contact with the urine, they can be used to great advantage for outlining fine vessels and ducts in pathologic specimens These specimens, after being injected with a rather concentrated solution of the chlorid or nitrate, are fixed in Kaiserling's solution, which causes a precipitation of the insoluble salts of thorium in the walls of the vessels and ducts causing them to stand out with unusual clearness of delineation when a roentgenogram is made of the specimen so prepared

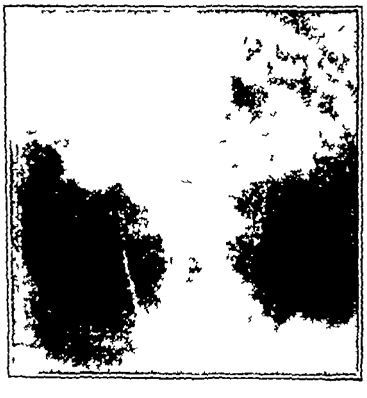

Fig 1 —Double pyelogram showing the same type of renal pelvis on each side The pelves are rather small and the calices greatly elongated

Since the thorium solution for clinical use contains a mixture of different salts, it was thought that a withdrawal of all of these excepting the double citrate of thorium and sodium (this salt being alone responsible for the shadow-casting properties) would be a great step toward simplification The substitution of other salts, namely, the chlorid for the nitrate of thorium, in the preparation of the solution, was also tried It was found, however that either the solution of the double citrate alone or any modification of the original solution when used experimentally, caused either an increase in toxicity, or the production of symptoms which were not observed when the original solution was used[2]

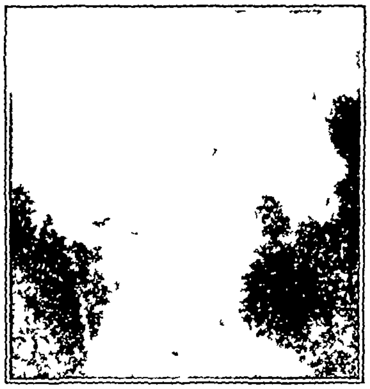

Fig 2 —Double pyelogram bilateral congenitally enlarged pelves

The use of this solution in the urologic clinic of this hospital was begun one year ago During this time it has been used in 185 cases, no untoward effects whatever having been observed In five of the cases where it was injected into the renal pelvis and ureter there was a slight reaction characterized by a slight rise in temperature, nausea and vomiting, all of which promptly subsided In one of these cases, on account of the marked irritability of the bladder, the patient had to be anesthetized before ureteral catheterization could be attempted, the etherization here could account for the symptoms produced At any rate, these same symptoms could be accounted for by ureteral catheterization alone, for they occur fully as frequently in cases where no solution is introduced into the renal pelvis and ureter In the series of cystograms there was nausea and vomiting in one case, and slight nausea and frequency of urination in another In the former instance the nausea and vomiting occurred some hours after the cystogram had been made, and may have been due to some dietary indiscretion In the latter instance, the patient was highly neurotic, which could readily account for the symptoms As much as 600 c c of the 10 per cent solution have been used in the entire urinary tract at one time This patient, a boy 12 years of age, had a dilated and trabeculated bladder with dilatation of the internal vesical sphincter, double hydro-ureters, and hydronephroses due to a congenital obstruction in the posterior urethra These conditions were all clearly demonstrated in the roentgenogram of this case No change in phenolsulphonephthalein output or blood urea content after the introduction of this solution into the urinary tract was demonstrated in this case, nor has there been any interference with kidney function, as shown by these two methods of investigation, in any of the cases in which it has been used, even though in some of these cases there had been a marked reduction in phenolsulphonephthalein output, and an increase in the blood urea content before the injection was made For pyelograms from 5 to 150 c c of the

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* From the James Buchanan Brady Urological Institute
* Read before the Section on Genito Urinary Diseases at the Sixty Seventh Annual Session of the American Medical Association Detroit June 1916

[1] Burns J E Thorium—A New Agent for Pyelography Preliminary Report The Journal A M A June 26 1915 p 2126

[2] Burns J E Thorium—A New Agent for Pyelography Bull Johns Hopkins Hosp 1916 27, 157

15 per cent solution have been used, and for cystograms almost a liter (quart) of the 10 per cent solution

Too much emphasis cannot be laid on the method of introduction of the solution into the renal pelvis and ureter The gravity method is now recognized by urologists as being the most successful and the least dangerous for complete distention of the renal pelvis This is accomplished by means of a buret with a rubber tubing connection and a properly fitting nozzle for the end of the ureteral catheter, the buret being held slightly above the level of the patient, and the solution being allowed to flow in until the patient complains of a sensation of fulness in either kidney region The exposure to the Roentgen ray is then made, the solution being allowed to flow into the renal pelvis during the exposure Injection by means of a syringe is dangerous because there is always a liability to overdistention of the pelvis, and forcing the solution into the renal parenchyma or into the perirenal tissues

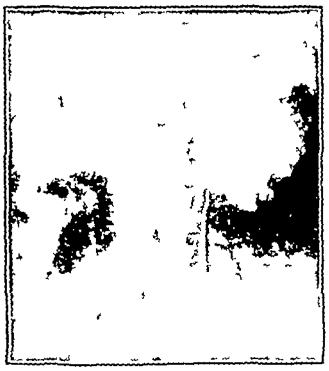
Fig 3 —Double pyelogram slight hydronephrosis on either side with marked irregularity of the outlines of the calices

A word may be said here in regard to the making of pyelograms in cases where there is a marked impairment of kidney function In these cases where the phenolsulphonephthalein output for two hours is only a trace, and the blood urea content well above normal, it may be well to avoid injecting both renal pelves at the same time In such cases the simultaneous injection of both renal pelves with any solution might sufficiently derange the functional activity of the renal epithelium, which is already markedly impaired, to cause the onset of uremia For this reason, it might be well to make a pyelogram on one side, and then wait a few days before making the other Again, where large hydronephroses and greatly dilated ureters are suspected, it may be well to allow the ureteral catheters to remain in position sufficiently long to insure a complete removal of the solution, for, as is well known, the peristaltic activity of a greatly dilated ureter is always markedly impaired, and consequently the elimination of the solution would be greatly prolonged

In pyelograms and cystograms made with this solution the outline of the renal pelvis and ureter, or the bladder, as the case may be, is not only remarkably definite but the shadow itself, even to its finest details, possesses an unusual clearness of delineation

The accentuation of the shadows of calculi by this solution, when they are not seen in the plain roentgenogram, is brought about either by the adhesive properties of the solution, by its capability of being absorbed, or by means of its comparative density For instance, in one case lately, the shadow of a ureteral calculus was brought out on one side where it was not seen in the plain roentgenogram, and on the other side, a renal calculus, which had previously been seen in the plain roentgenogram, was accentuated by the fact that its shadow was less dense than the shadow of the thorium solution surrounding it in the renal pelvis

The solution is clear and watery, and possesses such a marked degree of fluidity that it readily escapes from the renal pelvis, ureter and bladder This is shown by the fact that a plate made a few minutes after the injection has been discontinued gives no suggestion of a shadow, and assures its complete elimination from the urinary tract

The solution is not irritating to the mucous membranes of the renal pelvis, ureters and bladder This is demonstrated by the fact that no urinary symptoms have been observed in the cases in which it has been used No inflammation of the vesical mucous membrane has been observed at subsequent cystoscopic examination In cases which have come to operation within a few hours or days after the injection, examination of the bladder, ureters and renal pelvis has shown no evidence whatsoever of any irritative action Experimentally there has been no sign of any irritative action to the peritoneum in animals into whose peritoneal cavities this solution has been introduced, and all of the fluid has been absorbed in most instances In the preparation of the solution too much emphasis cannot be laid on its careful neutralization, and it is felt that this fact alone is responsible for the absence of any irritative action

The solution must be sterilized and kept sterile while being used, because, although it exhibits an inhibitory action on the growth of the ordinary bacteria, it is not bactericidal, and molds grow in it on standing It has been found that sterilization and resterilization of the same solution do not affect its stability in the least

As regards its use in bladder and kidney injections, no evidence of toxicity has been observed Experimentally this solution is far less toxic than collargol In animals where it has been given in small doses subcutaneously, intramuscularly, intraperitoneally and intravenously there has been no effect Larger doses have occasionally produced gastro-intestinal symptoms, while very large doses have in some instances produced death These fatal doses, of course, were far above the ordinary limits of clinical usage In a few instances 2 c c of this 15 per cent solution per kilogram (intraperitoneally and intramuscularly) proved fatal, much larger doses being required intravenously to produce death This, in the case of an ordinary man of 70 kg, would allow the escape of 140 c c of the solution into his tissues before evidence of toxicity—ten times as much as is used in a simple pyelogram, and hundreds of times greater than any small amount that might be absorbed during the procedure Much larger amounts have been used in the renal pelvis without any ill effects

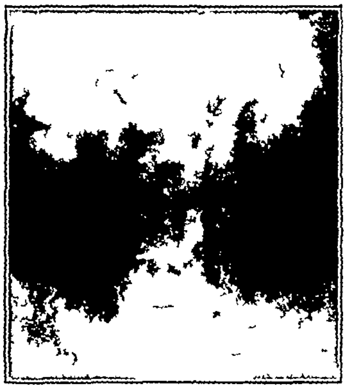
Fig 4 —Double pyelogram showing well marked bilateral hydronephroses and hydro ureters with kinking of the right ureter due to narrowing of the ureterovesical orifice

CONCLUSIONS

1 *Thorium solution fulfils all the conditions necessary for an ideal pyelographic medium*

2 Clinically there has never been the slightest evidence of toxicity in a series of 185 cases, the amounts used in a single case varying from a few cubic centimeters to a liter This alone is proof of its nontoxicity

3 Experimentally, although in a few instances death has followed the injection of large doses into the peritoneal cavity and tissues of animals, larger doses intraperitoneally and intravenously have produced no effect

4 That the solution is nonirritating is shown by the absence of any urinary symptoms after its use and the absolute lack of any such evidence cystoscopically, and at operation

5 The pyelograms and cystograms made with this solution show a splendid shadow which possesses an unusual clearness of delineation

6 The solution is clear and watery, therefore it possesses a great degree of fluidity, permitting its ready elimination from the urinary tract

7 It is perfectly clean and does not stain the linen In this particular it possesses another marked advantage over other solutions, particularly those of the silver salts

8 It is quite inexpensive, being about one third as costly as collargol

ABSTRACT OF DISCUSSION

Dr John T Geraghty, Baltimore Pyelography has become almost indispensable In certain cases it is practically the only means we have of arriving at an accurate diagnosis For that reason it is very necessary that we have a substance which is comparatively free from danger, and I think Dr Burns has given us such a substance I do not think you will ever be able to introduce into the kidney a foreign substance in cases that should not have pyelography, I think you would endanger the kidney by injecting salt solution under force The mere catheterization in some cases may be sufficient to induce uremia, particularly in cases with marked reduction in function, and if bilateral So that it is essential in very bad kidneys to have a substance not irritating and that will not reduce the function I do not believe that thorium will injure the kidney any more than salt solution will

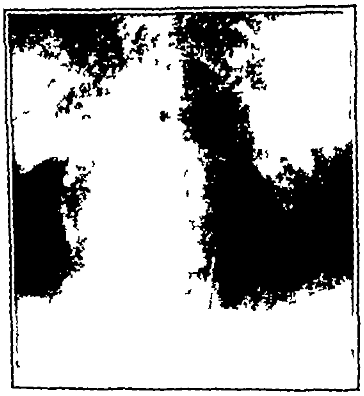

Fig 5—Double pyelogram showing double renal pelvis and double ureter on the right side with a calculus in the upper pelvis Moderate grade of hydronephrosis on the left side due to stone in the lower end of the left ureter

Dr William F Braasch, Rochester, Minn The value of pyelography is well understood now and generally recognized It is unfortunate that a year or two ago so many accidents were reported with its use It was in danger of falling into disuse By means of thorium, however, it is very probable that pyelography will come into its own Several years ago I said that that medium which was in thorough solution and which was nonirritating would be the best Colloidal silver solutions are not solutions, they are suspensions Some are more or less irritating, and therefore we had two important objections to pyelography The ill results following pyelography were the results of two distinct errors of technic—overdistention, and permitting the fluids to remain in the distended pelvis where they could not drain out again Thorium is a medium in solution, and which, even if injected into a distended pelvis and retained, will, as a rule, not cause any trouble I have seen four or five cases in which thorium was injected into large hydronephrotic sacs and cortical necrosis resulted I do not know whether it was due to the thorium alone or to a secondary infection that happened at the time of the injection of the thorium I am under the impression it was the latter but we should not jump to the conclusion because thorium has so many advantages over colloidal silver I still maintain that pyelography should not be done when we can make a diagnosis without it One objection to thorium is the fact that it does not give as good an outline of the ureter as do the colloidal silver salts Great care is required in the preparation of thorium and the ordinary chemist or druggist is not competent to do it The uniformity of clear cut delineation is not present as frequently as with collargol When there is no danger of retention and I wish to get a clear outline of the calices I still employ a 15 per cent collargol solution

Dr O S Lowsley, New York I want to add a word of warning in regard to the use of thorium In one of the clinics I am connected with we have been using thorium in all cases of pyelography We have never had any bad effects, but one of my confreres reported a case in which he had used thorium by gravity and gravity distention of the kidney pelvis, and when the first cessation of the flow appeared, or the patient complained of pain, a small amount of the solution was allowed to flow back before the picture was taken My confrere used thorium according to Dr Burns' method After the patient had passed a lot of black, tarry-looking, bloody material, she went into shock and died I am not exactly familiar with the history of the case She may have been one of the patients who should not have been pyelographed at all, but death apparently resulted from thorium

Dr E O Smith, Cincinnati Some years ago I reported a death from pyelography The patient was an aged lady who had a number of pathologic conditions, and perhaps this particular examination should not have been undertaken The patient died within five minutes after the pelvis of the kidney was dilated with slight gravity pressure and the picture taken She did not die from toxicity, but from shock All of us have seen cases and had experiences where there was pronounced shock following this method of examination Another case that came to me was a particularly sad experience It was that of a physician, a man past 60 years of age, who had a tumor mass in his left side We were unable to find anything abnormal in his urine, using the ordinary tests As a matter of differentiation to determine whether or not the mass was in the kidney pyelography was done The left kidney pelvis was injected under gravity with 10 per cent collargol This man suffered excruciating pain shortly afterward We went to his home 40 miles in the country the following day He passed absolutely no urine after we injected the pelvis of the kidney He died about five days afterward from anuria This emphasizes the point we ought to bear in mind that a distention of one kidney or some irritation produced in the kidney by this method of examination may have its effect on the other kidney, and this patient evidently had that effect, because the other kidney was catheterized at the time and there was nothing wrong with its function Having these experiences in mind, I am like Dr Braasch and take the position that this method of examination should not be employed until all other methods have been tried We use it as a last resort

Dr J Edward Burns, Baltimore There are certain borderline cases in which pyelography should not be employed In those cases in which the functional activity of the kidney is markedly impaired, for instance, those in which only a trace of phenolsulphonephthalein is excreted in two hours and the blood urea content is above normal on preliminary examination, a double pyelogram should be made with the greatest care It would be better to make a pyelogram of one side and then wait a few days before making one of the other side, because the activity of the renal epithelium is in a state of unstable equilibrium so to speak, just on the borderline, and the balance can readily be upset by the introduction of any solution In regard to the introduction of the solution it has been brought out in the discussion and has been known for some time, that the least harmful and the most successful procedure for insuring complete distention of the renal pelvis is the gravity method, and as I stated previously, in our record of 185 cases in which this thorium solution has been used by this method we have had absolutely no trouble whatever In cases where hydro-ureter and hydronephrosis are suspected it is well to leave the ureteral catheter in place for a while, so as to insure the drainage of as much of the solution from the pelvis and ureter as possible, because the peristaltic activity of the ureter is greatly impaired in these cases and for that reason their emptying is greatly prolonged In borderline cases where there is marked impairment of function and pyelography is done, I do not feel that any harmful results could be attributed to the solution used for it is largely due to the fact that the patient is in such a state that the functional equilibrium of the kidneys can be upset easily and by anything Dr Lowsley did not state as to whether the case he reported had been worked out from a functional standpoint or not previous to the injection of the renal pelves so it would be pretty hard in a case like that to say definitely whether the solution had anything to do with the death of the patient or not It is always well to have the renal function worked out definitely before pyelography is undertaken We have had absolutely no trouble whatsoever at the Brady Urological Institute in the use of this solution

THE TRANSPLANTATION OF FAT IN PROSTATIC AND KIDNEY SURGERY *

IRVIN S KOLL BS, MD
Professor of Genito Urinary Surgery Post Graduate Medical School and Hospital, Associate Genito Urinary Surgeon Michael Reese Hospital
CHICAGO

In the desire to utilize some means less mechanical than the various procedures suggested for the prevention of postoperative hemorrhage in suprapubic prostatectomy, nephrotomy and pyelotomy, this work was undertaken

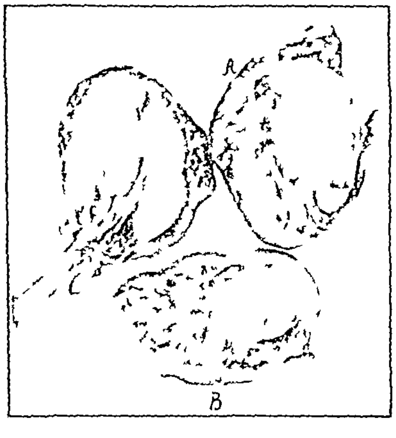

Fig 1 —Kidney lacerated in several places Fat sutured into wound Ten days after operation

The use of fat in surgery dates back to 1893, when Neuber suggested its use in lacerations of the liver His work was followed by Lexer and Czerny, and later by Klopfer in bone surgery I have been unable to find any reference made to the use of fat in kidney or prostatic surgery, except that of a preliminary report by Dr Kolischer,[1] which appeared two years ago

The experiments were carried out on dogs The kidneys were traumatized by crushing and lacerating and nephrotomized in various ways, also decapsulated, and fat from either the same animal or previously obtained from another dog sutured or tied into or over the wounds Some of the transplants were infected with colon bacilli and some with staphylococci

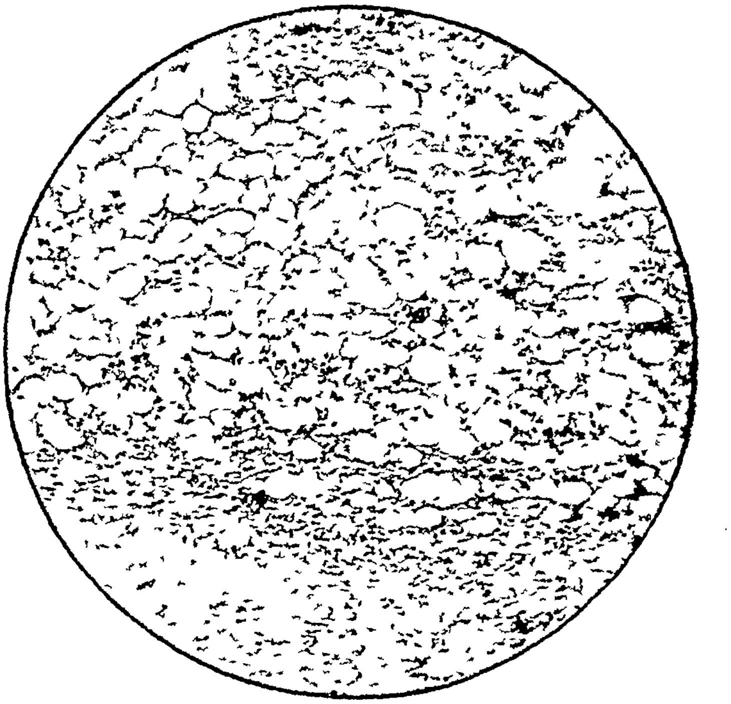

Fig 2 —Section taken from *A* showing progressive metamorphosis of the fat replacing the capsule which was peeled off Ten days after operation

It was in every instance very striking to see how promptly the bleeding stopped The kidneys were removed at periods following the operation varying from one day to six months

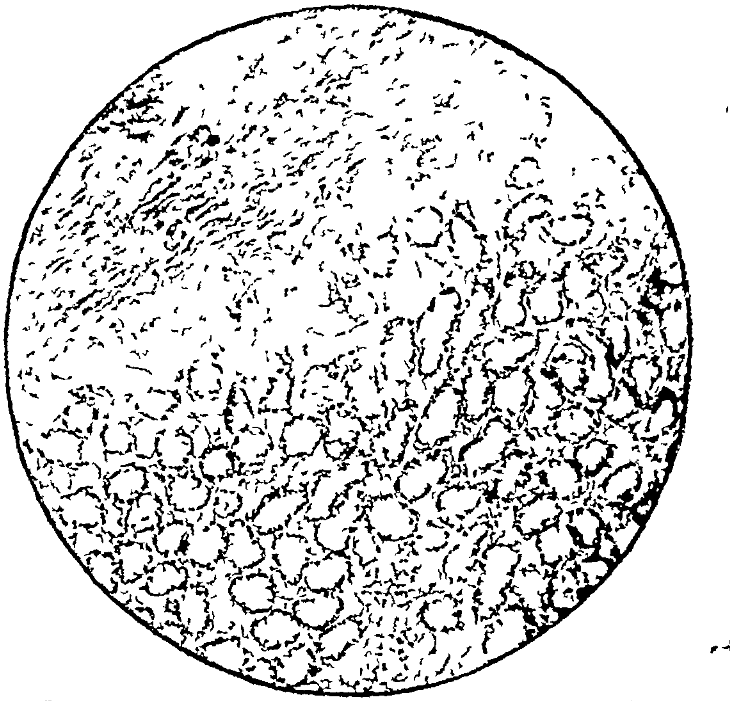

Fig 3 —Deep nephrotomy Fresh fat sutured in wound Four weeks after operation

On account of the anatomy of the prostate in the dog, the human prostatectomy could not be simulated By making pockets out of flaps of the bladder wall

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[1] Kolischer Urol and Cutan Rev December 1914

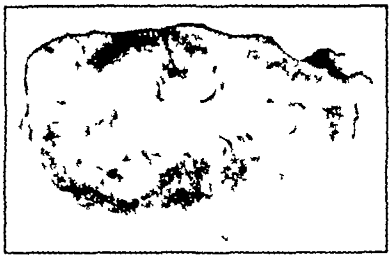

Fig 4—Deep incision into kidney Fat fixed in wound with three sutures Fourteen days after operation

it was possible to study the effect on fat transplanted into the bladder In each instance the fat rapidly disintegrated and completely disappeared from these formed pockets

Clinically, the experience has been more limited to the prostate The technic is simply to fill up the cavity made by the enucleation of the prostate and suture over the edges of the mucous membrane, leaving just enough of an opening for drainage and sloughing of the fat, which always takes place in two or three days, when it has served the purpose for which it was intended The fat can be taken from the abdominal incision of the patient, if he is sufficiently adipose or, better still, obtained from a dog previously Kept on ice in normal salt solution, in air-tight containers, the fat can be preserved indefinitely In almost every instance the oozing, as noted by the colored urine, will cease in twenty-four hours

This use of fat has also been tried in a number of nephrotomies for the removal of calculi from the parenchyma, and on several pyelotomies, also on one ruptured kidney by Dr Kolischer In the latter case the bleeding stopped immediately following the suturing of the fat over the rupture, and some months later was functionating without any hematuria

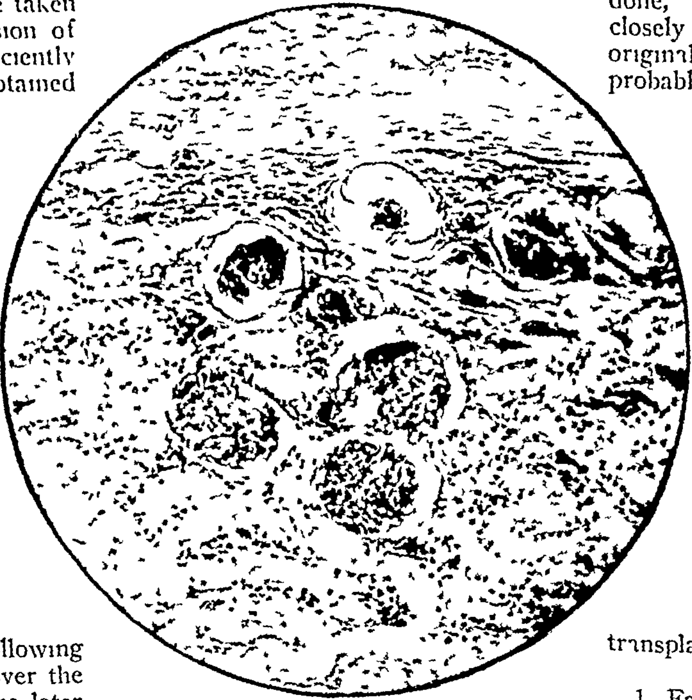

Fig 6—Kidney decapsulated, covered with fresh fat and then injected with staphylococci Sixty nine days after operation (Note New capsule of converted connective tissue Glomerulitis)

The study of sections taken from the areas in which the fat was transplanted shows a typical metaplasia of reticular connective tissue, becoming fibrous Grossly, in most instances where the traum was sufficiently extensive, secondary contraction reduces the kidney to one half or one quarter its normal size The process begins promptly, and in twenty-four hours the fibrin deposits show beginning organization The ultimate change is reached in three to four months in the absence of infection, and somewhat later in the presence of bacteria Infection, however, does not change the end-results at the site of the transplant, though the renal parenchyma remote from the transplant gives evidence of bacterial invasion

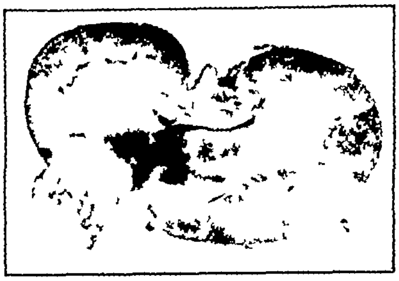

Fig 5—Scalpel plunged from cortex down to pelvis Wound then plugged with fat Twenty eight days after operation

A new capsule forms where decapsulation has been done, the structure of which closely resembles that of the original kidney capsule This probably explains why the Edebohls operation for the relief of chronic interstitial nephritis ultimately fails

In every specimen examined there is considerable necrosis of the renal tissue for some distance from the point of trauma This necrosis should suggest refraining from the unsurgical procedure of cutting into the kidney for the search of calculi The necrotic area is replaced by fibrous tissue, and in later months cannot be distinguished from the changed fatty transplant

SUMMARY

1 Fat is a valuable hemostatic following prostatectomy and in operations on the kidney

2 The change into fibrous connective tissue is complete in from three to four months

3 Infection does not alter the metaplasia, though it delays it

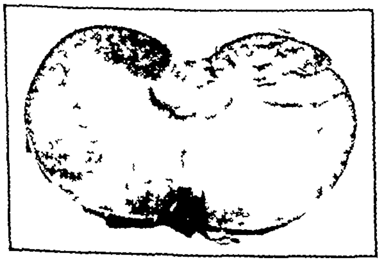

Fig 7—Deep nephrotomy Fresh fat sutured in wound Four weeks after operation

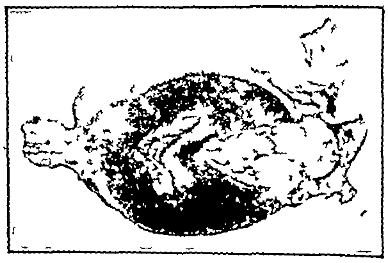

Fig 8—Nephrotomy filled with fat, one week old Thirty seven days after operation

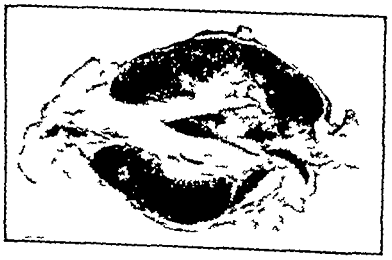

Fig 9—Deep nephrotomy, filled with fat and infected with twenty four hours colon bacillus culture Two and one half months after operation

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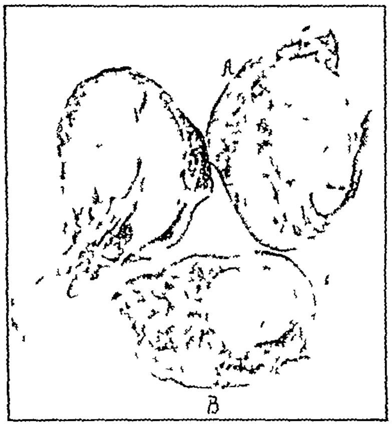

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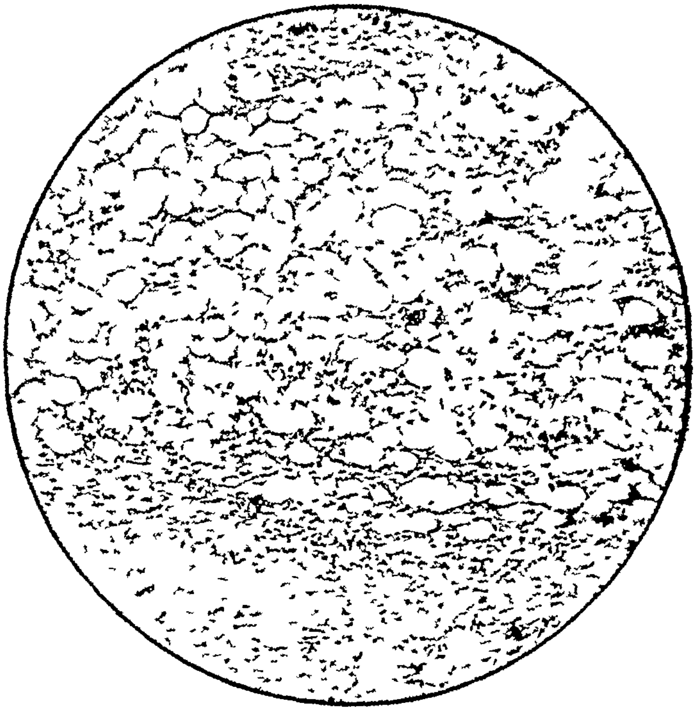

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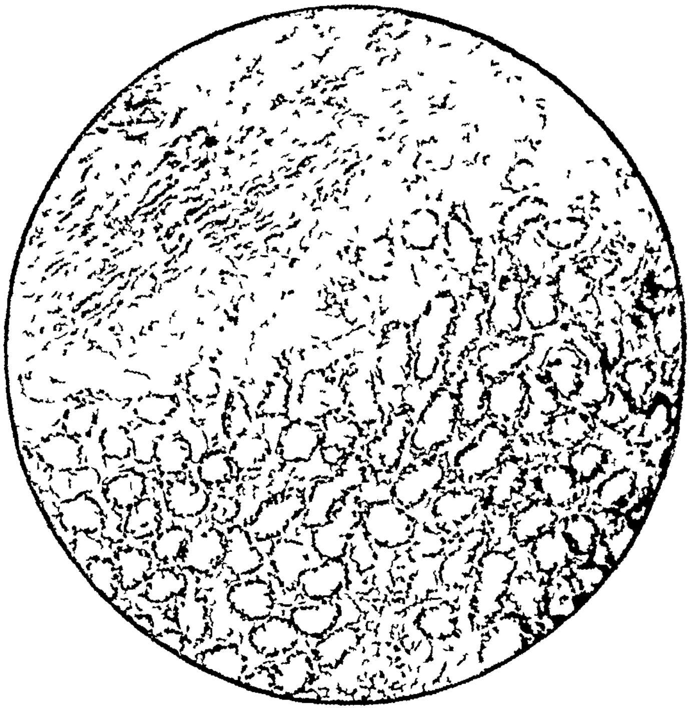

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* Because of lack of space this article is abbreviated in The Journal The complete article appears in the Transactions of the section and in the author s reprints A copy of the latter will be sent by the author on receipt of a stamped addressed envelope

[1] Kolischer Urol and Cutan Rev December 1914

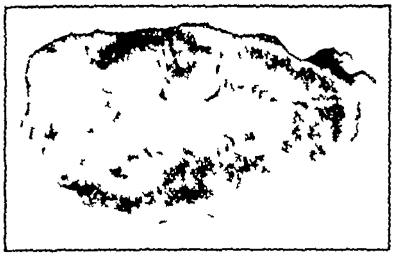

Fig 4—Deep incision into kidney Fat fixed in wound with three sutures Fourteen days after operation

it was possible to study the effect on fat transplanted into the bladder In each instance the fat rapidly disintegrated and completely disappeared from these formed pockets

Clinically, the experience has been more limited to the prostate The technic is simply to fill up the cavity made by the enucleation of the prostate and suture over the edges of the mucous membrane, leaving just enough of an opening for drainage and sloughing of the fat, which always takes place in two or three days, when it has served the purpose for which it was intended The fat can be taken from the abdominal incision of the patient, if he is sufficiently adipose or, better still, obtained from a dog previously Kept on ice in normal salt solution, in air-tight containers, the fat can be preserved indefinitely In almost every instance the oozing, as noted by the colored urine, will cease in twenty-four hours

This use of fat has also been tried in a number of nephrotomies for the removal of calculi from the parenchyma, and on several pyelotomies also on one ruptured kidney by Dr Kolischer In the latter case the bleeding stopped immediately following the suturing of the fat over the rupture, and some months later was functionating without any hematuria

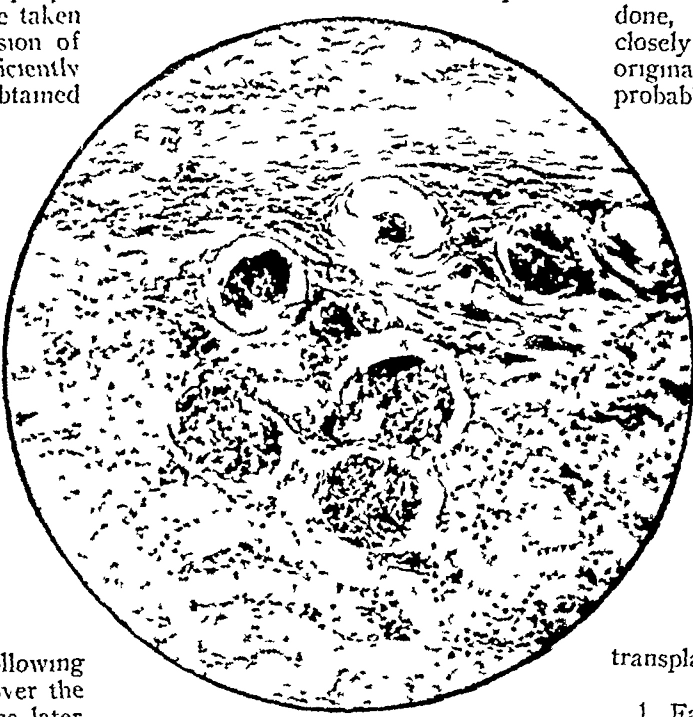

Fig 6—Kidney decapsulated covered with fresh fat and then injected with staphylococci Sixty nine days after operation (Note New capsule of converted connective tissue Glomerulitis)

The study of sections taken from the areas in which the fat was transplanted shows a typical metaplasia of reticular connective tissue, becoming fibrous Grossly, in most instances where the traum was sufficiently extensive, secondary contraction reduces the kidney to one half or one quarter its normal size The process begins promptly, and in twenty-four hours the fibrin deposits show beginning organization The ultimate change is reached in three to four months in the absence of infection, and somewhat later in the presence of bacteria Infection, however, does not change the end-results at the site of the transplant, though the renal parenchyma remote from the transplant gives evidence of bacterial invasion

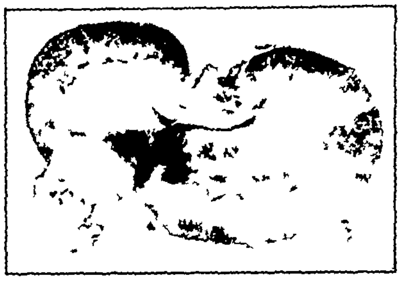

Fig 5—Scalpel plunged from cortex down to pelvis Wound then plugged with fat Twenty eight days after operation

A new capsule forms where decapsulation has been done, the structure of which closely resembles that of the original kidney capsule This probably explains why the Edebohls operation for the relief of chronic interstitial nephritis ultimately fails

In every specimen examined there is considerable necrosis of the renal tissue for some distance from the point of trauma This necrosis should suggest refraining from the unsurgical procedure of cutting into the kidney for the search of calculi The necrotic area is replaced by fibrous tissue, and in later months cannot be distinguished from the changed fatty transplant

SUMMARY

1 Fat is a valuable hemostatic following prostatectomy and in operations on the kidney

2 The change into fibrous connective tissue is complete in from three to four months

3 Infection does not alter the metaplasia, though it delays it

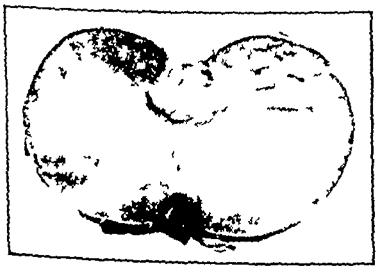

Fig 7—Deep nephrotomy Fresh fat sutured in wound Four weeks after operation

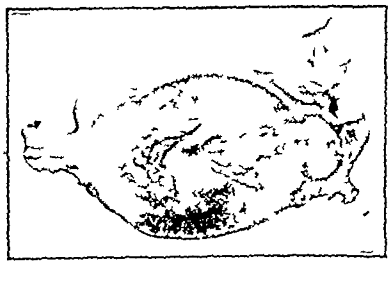

Fig 8—Nephrotomy filled with fat one week old Thirty seven days after operation

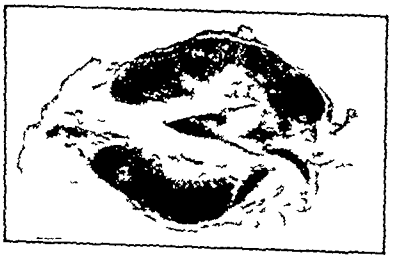

Fig 9—Deep nephrotomy filled with fat and infected with twenty four hours colon bacillus culture Two and one half months after operation

4 When placed over a decapsulated kidney, a new capsule is formed

5 Incision into healthy kidney is followed by extensive necrosis, which is replaced by fibrous tissue

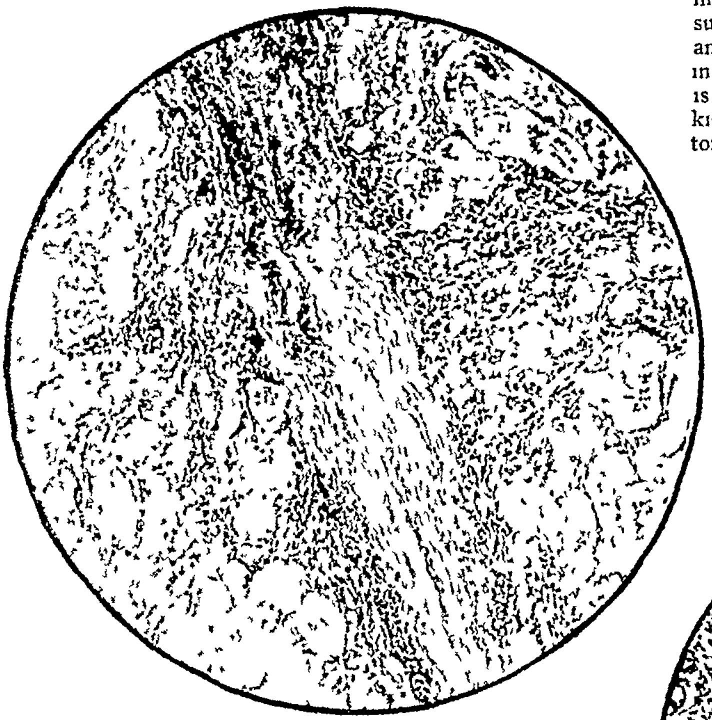

Fig 10—One deep nephrotomy at either pole, filled with human fat, one day old Seventy six days after operation Kidney was shrunken to one quarter its normal size (Note Change of fat into fibrous connective tissue Extensive change in tubules)

Contrary to the usual sequence, clinical experience preceded the laboratory work, and I am indebted to Dr G Kolischer for the inspiration leading to this work

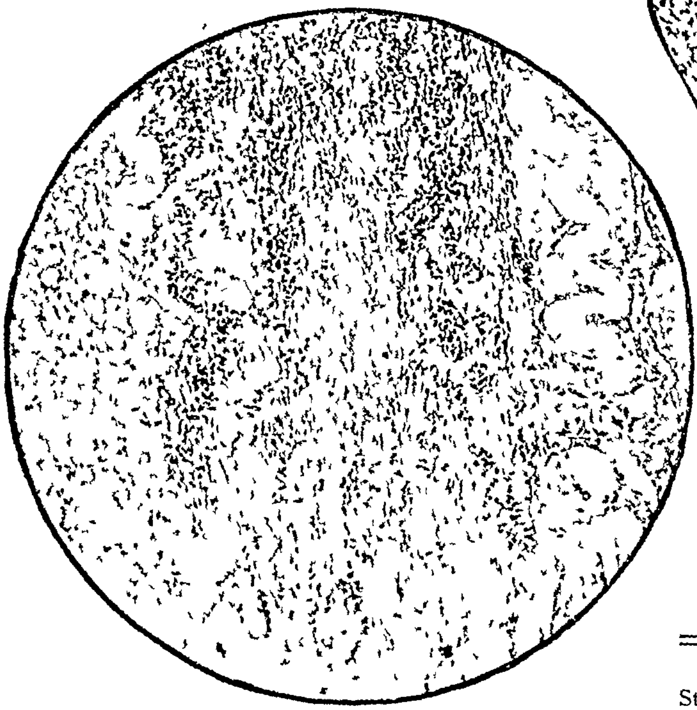

Fig 11—Nephrotomy filled with fat and injected with culture staphylococci Two months after operation

ABSTRACT OF DISCUSSION

Dr G Kolischer, Chicago I hope that these experiments will encourage you to use this transplantation of fat in renal and bladder surgery rather extensively For the efficiency of this method I have plenty of clinical evidence I want to mention three types of procedure The first is the reinforcement of the pelvis of the kidney after pyelotomy After the incision in the pelvis is sewed up we leave the ends of the sutures long, and then we pull up a flap of the peritoneal fat and tie it over the pelvis with the long ends of the suture, in that way the oozing stops immediately The second type is the padding of the kidney incision for a rupture in the kidney or after a nephrotomy The third type is in prostatectomy I am convinced that a great many of our prostatectomized patients used to die by simply oozing themselves to death through the bladder In order to prevent hemorrhage we place a piece of fat in the cavity, and anchor it with a few stitches

Dr H J Scherck, St Louis About a year ago Dr Kolischer suggested this method to me, and since that time I have had occasion to use fat in three cases of traumatized kidneys in a railroad hospital, and in all of the cases the result was entirely satisfactory I have used it a number of times in prostatic surgery where the bleeding seemed to be excessive, and found it entirely satisfactory

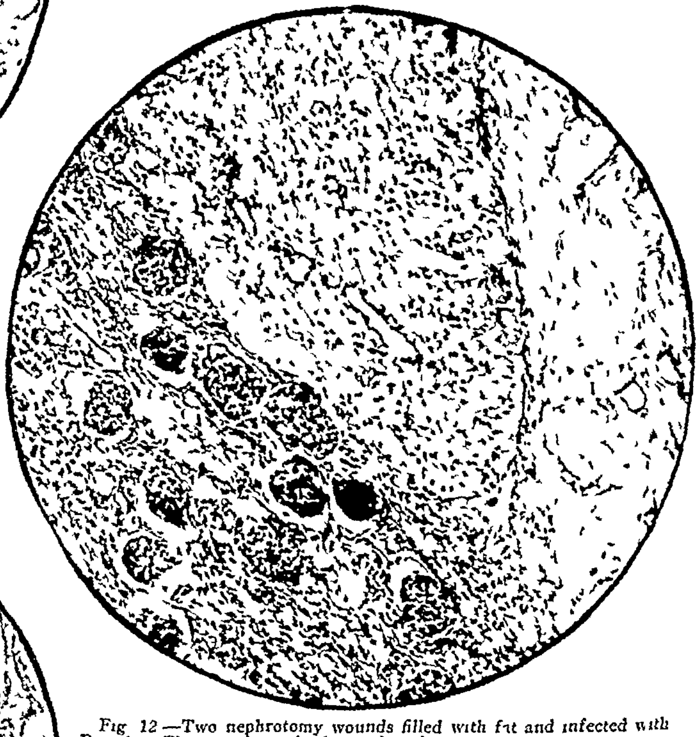

Fig 12—Two nephrotomy wounds filled with fat and infected with B coli Three and one half months after operation

Dr David W MacKenzie, New York I got the fat suggestion from Dr Charles Gibson of New York, who has tried it, I believe, in a number of kidney cases, sometimes without drainage I have always drained I have never used it in the prostate It seems very simple

Dr Irvin S Koll, Chicago I want to emphasize the fact that you need have no hesitancy in removing the fat from a dog Put it in air-tight containers on ice and it will keep indefinitely I think it is of advantage to do this, because where you remove it from the abdominal wall in a prostatectomy it delays the operation, leaves an open space, and it takes time to ligate the bleeding vessels

Spotted Fever—According to the annual report of the Idaho State Board of Health, Rocky Mountain spotted or tick fever decreased one half during 1916 as compared with the previous year In 1915 there were 349 cases, resulting in fourteen deaths In 1916 there were only 148 cases, eleven resulting in death The disease has been studied since 1910 by the state and federal authorities, and the reduction in the number of cases is attributed to these investigations

MIGRATION OF SHELL FRAGMENT FROM RIGHT FEMORAL VEIN TO RIGHT VENTRICLE OF HEART

GENERALIZED GAS BACILLUS INFECTION *

HENRY H M LYLE, M D
Professor of Clinical Surgery, Columbia University, College of Physicians and Surgeons, Attending Surgeon, St Luke's Hospital
Late Chirurgien Chef, Ambulance d' Annel, Oise, France
NEW YORK

History —The patient, F A, Eighth Zouaves, was brought, June 16, at 3 30 a m, to the ambulance Four hours previously he had received a perforating shell wound of the left thigh 4 cm above the knee, and a penetrating shell wound of the right thigh A fluoroscopic examination of the thigh and lower abdomen failed to reveal any foreign body Unfortunately the upper abdomen and thorax were not examined The failure to find the shell fragment was puzzling, as the depth and direction of the wound seemed to preclude the possibility of the particle having fallen out

The patient was in a condition of mild shock The temperature was 97.2, pulse 126 respiration 28 Physical examination of the chest and abdomen was negative

Operation —The contused skin edges were cut away, the wound laid open, and the projectile tract lightly but methodically excised No foreign bodies were discovered At the bottom of the wound of the right thigh, the femoral vessels were found embedded in a clot, the femoral vein was bruised but apparently intact Two Carrel instillation tubes were inserted, and 20 c c of Dakin's hypochlorite solution were delivered to the wound every two hours

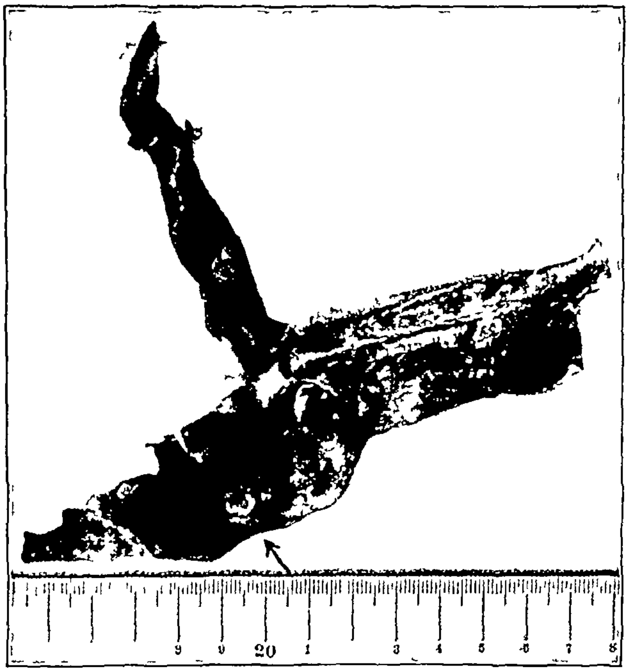

Fig 1 —Femoral vein and artery showing the wound in the femoral vein

The patient appeared drowsy and slept the major portion of the first two days On the third day the abdomen became greatly distended, and he complained of pain and tenderness over the spleen and right kidney The distention was partially relieved by lavage and enemas Jaundice appeared on the morning of the fourth day, and was accompanied by pain and tenderness over the liver The temperature rose to 102 2, the pulse to 132, and the respiration to 32 Fine moist rales were heard at the left base The area of cardiac dulness had increased, a distinct pericardial rub was heard, and the cardiac sounds were indistinct A provisional diagnosis of general gas bacillus infection with pericarditis and pneumonia was made In the afternoon there was a temporary improvement, followed by sudden death at 5 30 Throughout the course the wound remained sterile

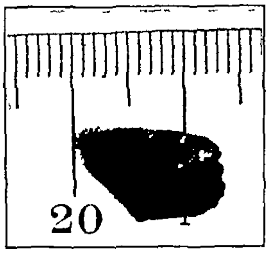

Fig 2 —The shell fragment carried by the blood stream from the right femoral vein to the right ventricle

Necropsy (Dr Proctor) —The body is that of a man, aged 31, medium frame, fairly well nourished The skin is deeply jaundiced There are no wounds of the abdomen or thorax The wounds of the thigh are clean The wound of the right thigh is 10 cm below and 5 cm posterior to the anterior superior spine of the ilium The tract leads forward, downward and inward to the femoral vein (Fig 1) In the external wall to the vein there is a small valve-like wound sealed by an organized clot There is no local evidence of gas infection Both lungs are edematous, there is a fibropurulent pericarditis with free gas in the pericardial cavity The heart is enlarged, and its external surface is covered with a fibropurulent exudate The cut section of the heart gives a gaseous crepitation There is a rough shell fragment free in the cavity of the right ventricle (Fig 2) The shell fragment measures 1 5 cm in length, 0 9 cm in width, and 0 5 cm in thickness, and weighs 1 81 gm There are fibers of clothing adherent to the irregular surface of the shell The liver, spleen and kidneys are enlarged On cut section all give gaseous crepitation There is no obstruction to the gallbladder or gallducts

Revised Diagnosis —Perforating wound of the left thigh, penetrating wound of the right femoral vein, migration of the shell fragment to the right ventricle of the heart General gas bacillus infection No local infection of the wound

Besides the extreme rarity of the case, the following points are worthy of notice

1 The carrying of a rough shell fragment by the blood stream from the right femoral vein to the right ventricle, the patient living four days and eighteen hours

2 The sealing up of the wound in the vein

3 The sterilization of the local wounds by the Carrel method, the generalized gas infection having undoubtedly arisen from the clothes on the shell fragment

A fluoroscopic examination of the upper abdomen might have revealed the presence of the shell fragment It then would have been a simple matter to milk the fragment into an unimportant vein from where it could have been easily removed This has already been done in the case of a shrapnel ball [1]

50 East Fifty-Third Street

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[1] Grandgerard Presse med Aug 27 1916, p 365

* The heart shell fragment and vein were shown before the Surgical section of the New York Academy of Medicine Oct. 6 1916

End-Result Investigation —The investigation of surgical end-results is a matter of serious importance The employment of special workers to carry on end-result investigations in the field is now the practice of a number of hospitals Despite the cost involved such proposals should be sympathetically received by hospital administrators The hospital is one of the greatest of existing social institutions, supported in this country at a total cost which staggers the imagination The value of its output must not be assumed, but must be proved The altruistic hospital surgeon will not permit his equanimity to be disturbed by the revelations of end-result investigations, if the disclosures are sometimes surprising they are always instructive —S S Goldwater M D *Modern Hospital* November, 1916

LYMPHOGENOUS ASCENDING INFECTION OF THE URINARY TRACT *

DANIEL N EISENDRATH, A B, M D
AND
OSCAR T SCHULTZ, A B, M D
CHICAGO

In an earlier communication[1] we reported the results of a series of experiments which showed that infection of the upper urinary tract can take place when an emulsion of organisms is injected into the bladders of rabbits and dogs Our studies in this first series enabled us to conclude that the paths along which the infection travels are the lymphatics of the wall of the ureter and of the renal pelvis The view that infection reaches the kidney from the bladder by way of the lumen of the ureter must, we feel, be abandoned, except for those cases in which an almost complete obstruction exists

In our first paper we reviewed the work of earlier investigators, which was performed under conditions seldom met with in the human being In the majority of experiments cultures were injected into the ligated ureter Under these conditions it was not surprising to find organisms within seven hours in the tubules of the kidney[2]

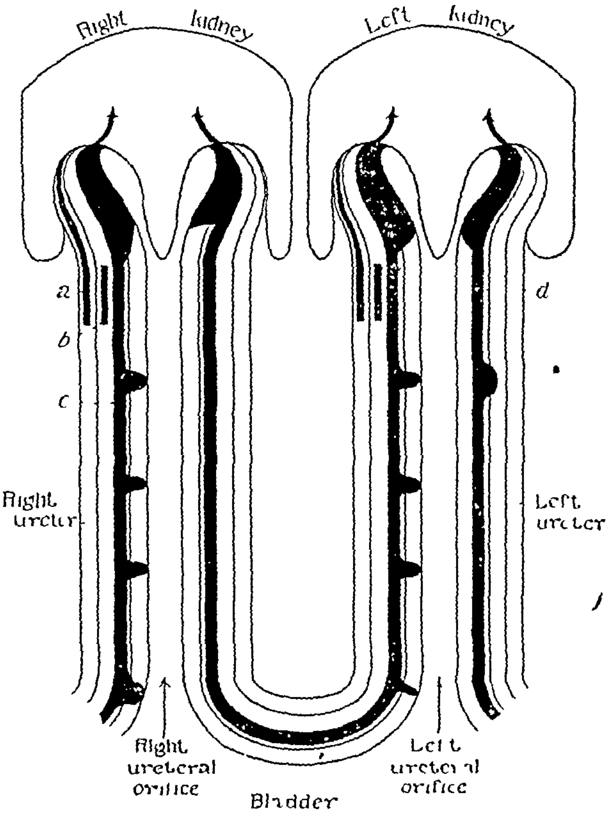

Fig 1—Diagram of Experiment 423 Shaded areas indicate paths of infection as indicated by inflammatory infiltration which could be followed from the bladder to the kidney *c* submucous infiltration with occasional extension into the mucosa *b* and *a* infiltration in muscular and periureteral coats *d* submucous infiltration in left ureter extending at one level into the muscular coat

Other investigators, like Sweet[3] and Sweet and Stewart,[4] implanted the cut ends of the ureters into the intestine They called attention to the same perivascular areas of infiltration as we have found and to the probability that the infection travels by way of the interstitial lymphatics of the ureter Their method is open to criticism because the changes which take place after reimplantation of the ureter into the intestine are so intense and occur so early that it is impossible to follow the paths of infection It also opens up the lymphatics in a manner practically never met with in our clinical cases Hess[5] injected cultures into the bladder and found no changes after intravesical inoculation alone, but these results may have been due to the small amount injected and the long interval which elapsed between the time of the experiment and the time microscopic examination was made Our technic was the same in both series of experiments. The organisms employed were *Bacillus coli, Staphylococcus aureus* and *Bacillus proteus*

An emulsion of sterile salt solution and scrapings of four agar slant cultures of the organisms was injected through a silver cannula into the bladders of female animals[6] Before this intravesical inoculation some of the urine was obtained for cultures, so as to determine the presence of any preexisting infection The cultures taken from the urine before the experiments were sterile in all of the animals of both series Every precaution was taken to avoid injury to the urethra and bladder, and a minimal degree of force was used in injecting the emulsion By following this method we imitated the conditions existing clinically as closely as possible There was absolutely no interference with the sphincteric action present at the vesical end of the ureter, our idea being to permit the organisms to invade the bladder mucosa and be carried into the intramural and periureteral lymphatics of the ureter through the anastomosis of the lymphatics of the bladder and ureter, previously discovered by Stahr,[7] and Bauereisen,[8] referred to in our first communication[1]

Our animals were killed at varying intervals with strychnin, and cultures were immediately made from the heart's blood, both kidneys, and from the bladder Serial sections of the entire ureter and renal pelvis were made in order to follow the paths of infection from one level to the next higher in longitudinal sections Portions of the bladder at some distance from the vesical end of the ureter and areas from every portion of the kidney were also examined in serial sections

We employed only dogs in our second series because of the presence of slight inflammatory changes in the rabbit controls of the first series All of the blood cultures of the second series were negative The organism injected was found at necropsy in the bladder of two animals, but never in the kidneys, out of a total of thirteen experiments

The ureter and renal pelvis showed evidence of involvement of varying grade in every dog In three of the animals, one inoculated with *B coli* and two with *B proteus,* the kidney was also involved

We believe that our method of injecting the organisms reproduces as closely as possible the conditions found clinically in infections of the lower urinary tract The negative cultures of the urine obtained before injection prove the absence of any previous infection The negative blood cultures in twenty-six animals of the first series and in thirteen of the second series eliminates the possibility of a hematogenous infection

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* From the Nelson Morris Institute for Medical Research of the Michael Reese Hospital Chicago

* Read before the Section on Genito Urinary Diseases at the Sixty Seventh Annual Session of the American Medical Association, Detroit June 1916

[1] Eisendrath D N and Kahn J V Role of the Lymphatics in Ascending Renal Infection The Journal A M A Feb 19, 1916 p 561

[2] Schmidt and Aschoff Die Pyelonephritis Jena 1893

[3] Sweet Univ Penn Med Bull 1910 **23,** 233

[4] Sweet and Stewart Surg Gynec and Obst 1914 **18,** 460

[5] Hess Mitt a d Grenzgeb d Med u Chir 1913 **26,** 135

[6] The animals were anesthetized and the external genitals thoroughly cleansed and the labia retracted before the canula was introduced so as to eliminate any possibility of introducing infection from the vagina

[7] Stahr Arch f Anat u Physiol 1900 p 41

[8] Bauereisen Ztschr f gynaek Urol 1911 **2,** 235

The details of the experiments will be published elsewhere, but the summarized microscopic findings in two typical experiments are given herewith In Experiment 423 an emulsion of *B coli* was injected into the bladder and the dog was killed five days later In this animal the inflammatory infiltration, as shown in Figure 1, follows the lymphatics of the submucous coat from the bladder into the ureter Near the upper ends of the two ureters the outer coats become markedly involved and the renal pelvis is the seat of an intense, subacute, inflammatory reaction From the pelvis the infiltration can be followed into the parenchyma of the kidney along the course of the intrarenal lymphatics The lining epithelium of the ureter and of the renal pelvis is intact, except where it has become secondarily invaded by inflammatory foci which had their origin in the subjacent coat (Fig 1)

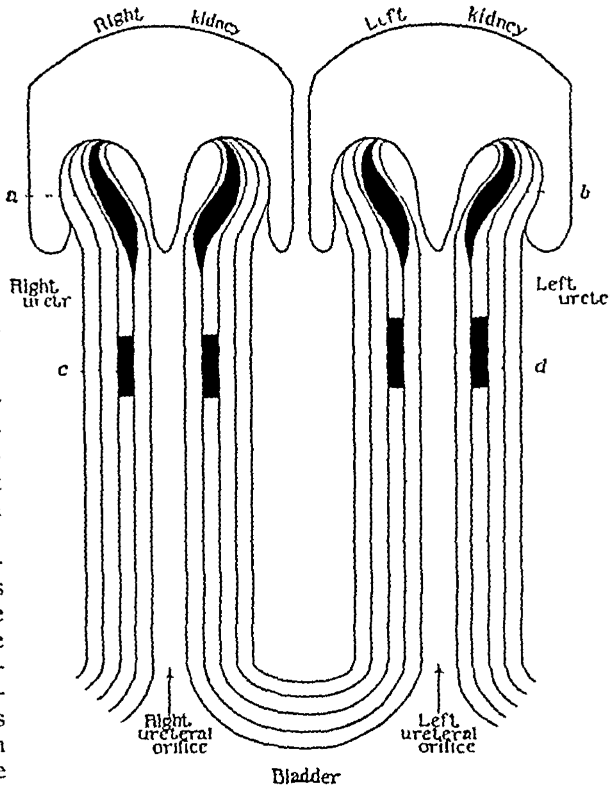

Fig 2 —Diagram of Experiment 431 Shaded areas indicate regions of infiltration in submucous and mucous coat of right (*a*) and left (*b*) renal pelves the infiltration in the submucous coat of the ureters is shown at *c* and *d*

Throughout the urinary tract the inflammatory process is characterized by focal lymphoid infiltration about smaller blood vessels and lymphatics In Experiment 431, a dog killed five days after injection of *B proteus* into the bladder, the involvement is somewhat different in that it is most marked in the upper portion of the urinary tract (Fig 2) In the renal pelvis the inflammatory reaction becomes quite intense and from the pelvis extends up into the medullary tissue of the kidney in the form of intertubular perivascular bands of lymphoid infiltration In the ureters of this animal the only change of any importance to which we would call attention is swelling and proliferation of the endothelium of the lymphatics, about some of which there is a very narrow zone of lymphoid infiltration

Seven uninoculated dogs were examined as controls, the examination in each case being based on serial sections of the entire urinary tract from the bladder to the kidney All were negative with one exception, in which the ureter and renal pelvis showed slight foci of perivascular infiltration, similar to those found in animals killed at longer periods after inoculation This finding in one control dog does not invalidate our experiments, but rather strengthens them and indicates that dogs are susceptible under natural conditions to ascending infections of the urinary tract by way of the interstitial lymphatics of the ureter

The microscopic findings in our second series agree in every respect with those of the first series of experiments The most marked reaction occurs after *B coli* and the least after *Staphylococcus aureus*, while after *B proteus* there is a reaction intermediate between the other two Common to all of the experiments was the intact condition of the lining epithelium of the urinary tract The inflammatory changes followed the course of the lymphatics from the bladder to the ureter and from this in turn to the renal pelvis and kidney in such a large number of experiments that we believe there can no longer be any doubt about the paths in ascending infections of the urinary tract

A glance at Figure 3 will impress one with the importance of the clinical application of our experimental work Organisms can be carried to the kidney from the bladder, prostate or seminal vesicles in the male, even though no obstruction exists in the lower urinary tract and the ureterovesical sphincter is intact In the female a similar transport of organisms from the bladder to the kidney can occur Bauereisen[9] has recently directed attention to the anastomosis of the lymphatics of the internal genitalia with those of the bladder and ureter He believes that some of the cases of cystitis following gynecologic operations are due to this communication In some of the experiments of our first series the tendency of the inflammatory changes to follow the course of the periureteral lymphatics was very striking It is quite possible that the pyelitis of pregnancy and the puerperium may be due to the migration of organisms from the genitalia directly to the periureteral lymphatics without the presence of an accompanying cystitis Our work would also offer the most plausible explanation for the pyelitis of infancy and childhood, which occurs predominantly in girls Infection of the bladder in such cases from the vulvovaginitis, so commonly present, with ascending infection by way of the interstitial lymphatics of the ureter, can readily occur

CONCLUSIONS

1 While infection of the bladder or lower ureter may reach the renal pelvis or the kidney either by way of the lumen of the urinary tract or by way of the mural lymphatics, experimental and clinical evidence indicates that complete or almost complete obstruction to the urinary outflow is necessary for ascent of infection by way of the lumen of the urinary tract

2 We have shown experimentally that in the absence of complete obstruction the infection may and does pass upward from the bladder by means of the lymphatics of the ureteral wall

3 Depending on the virulence of the organism and on the susceptibility of the host, the involvement may

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[9] Bauereisen Ztschr f gynak Urol 1914, 4, 1

remain limited to (1) the bladder and ureter, (2) it may pass upward to the pelvis, or (3) it may invade the renal tissues When the kidney itself becomes involved, the inflammatory agent is carried from the renal pelvis to the parenchyma by the lymphatics of the intertubular and perivascular tissues

4 In the human being the lymphatic network constitutes the most important path of ascending infection when pyelitis or pyelonephritis follows cystitis not associated with complete obstruction to the urinary outflow

5 In the absence of cystitis the renal pelvis or the kidney itself may become involved by the transport of infection from the pelvic organs or from the lower intestinal tract through the anastomosing lymphatic channels, which anatomic study has shown to be present

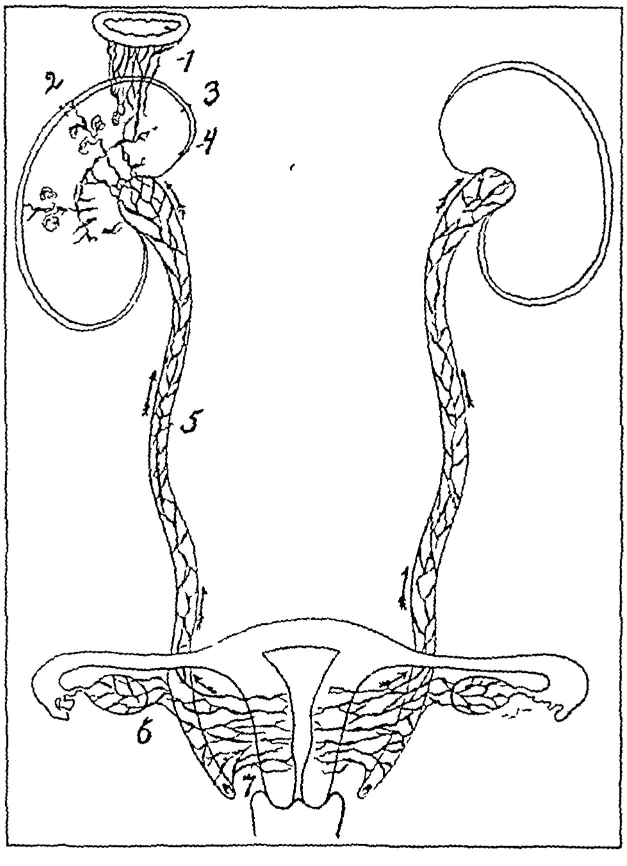

Fig 3—Relation of lymphatics of the ureter to those of the internal genitalia of the female and to the colon 1 lymphatics from colon to cortex of kidney, 2 3 and 4, periglomerular boundary zone and inter tubular lymphatics of kidney (Kumita) 6 communication of periureteral lymphatics (5) with those of uterus, tubes and ovaries

ABSTRACT OF DISCUSSION

Dr G Kolischer, Chicago Up to recent years it was believed and stated in a kind of axiomatic way that there were only two sources of renal infection, the hematogenous infection and the direct Now it is demonstrated that micro-organisms may travel up into the kidney from the bladder, from the genitals, especially in the female, without being carried through the lumen of the ureter, they are carried through the lymphatics, without any obstruction, where the flushing from the kidney to the bladder is still intact This will do away with the indifference shown in certain quarters toward infection of the genito-urinary tract, especially in women It will be necessary to attend to all these processes in the lower genito-urinary tract in women very thoroughly, so as to prevent pyelitis, especially in women, and in pregnant women We will be able to save many cases which would become infected and lost otherwise

Dr E O Smith, Cincinnati Dr Kretschmer has shown in his cystographic work that even normal bladders have regurgitation of fluid into the pelvis of the kidney, so we may still have infection going up the ureter without obstruction, and there may be pyelitis without obstruction anywhere along the line of the ureter It has been demonstrated that the normal kidney will take care of a considerable amount of infectious material, and in order to have an infection of the kidney, even though it reaches the kidney through any one of the three routes, there must be something that is damaging that kidney A normal kidney will take care of perhaps all that will go through this lymphatic tract I would like to ask Dr Eisendrath to explain just why these pelves become infected without an infection of the kidney by the infection carried through the lymphatic stream?

Dr Edwin Beer, New York I do not quite see how one can conclude that the infection started in the lymphatic channel and not within the ureter I am firmly convinced that lymphatic infection along the ureter is very important Yesterday Dr Crabtree told me that in a series of about fifty cases of pyelonephritis they had a positive blood culture of colon bacilli in 30 per cent I would like to ask Dr Eisendrath whether he controlled his animals, took blood cultures, so as to disprove a hemic infection plus the lymphatic infection? My evidence of the importance of the lymphatic infection is in tuberculosis of the kidney In the earliest types of tuberculosis of the kidney one may find, and I have seen it, the tuberculous ulcer starting in the notch which Dr Eisendrath called attention to, the angle where the papilla is inserted into the kidney I do not think many of us doubt, from the experimental work that has been done that tuberculosis of the kidney is a hemic infection The interesting point brought out by cases I have observed, in which the ureter is removed secondarily, is the fact that the microscopic examination of the ureter will show in the great majority of cases that the mucous membrane is intact, but that there is a lymphatic tuberculosis, a periureteritis The question arises, Is there not an analogy between the tuberculous cases and the colon infections which would allow us to harmonize the results of the clinical observations of Cabot and Crabtree, and the experimental work of Eisendrath?

Dr Irvin S Koll, Chicago A few years ago I made bold to coin the expression "lymphomania," because I was afraid that our interpretation of the experimental work on kidney infection was becoming too reactionary Some of my earlier kidney experimental work shows definitely that we are overestimating the importance of the lymphatic tract There can be no doubt that the lymphatics carry a large percentage of the infections of the kidney from the lower urinary tract, but I can present a number of sections from the kidney that show definitely that we get a distinct glomerulitis without any evidence of round cell infiltration around the lymphatics

Dr Daniel N Eisendrath Chicago We made blood cultures on every known medium on every animal that was killed (they were killed with strychnin), in a thorough bacteriologic manner, and in not a single case did we find a positive culture from the blood Furthermore, we made cultures from the urine in every case, and did not find a positive result in that At necropsy, in addition to cultures from the blood, we made cultures from both kidneys and from the bladder, and in a number of these we recovered the same organism which we injected Dr Smith brought up a point which I am going to bring out in the paper, the longer an experiment lasted, the less did we see In other words, it seemed that what we found was frequently not possible of clinical demonstration over eleven days after the animal became infected We see first little traces of infection in the bladder, and perhaps up the ureter a few little cells, nothing else My belief has always been that we seldom, if ever, get a pure pyelitis, that there is almost invariably an infection of the parenchyma of the kidney I think Dr Chute was one of the first to call attention to that In regard to the question which Dr Beer raised as to the transmission within the kidney itself, I am becoming more and more convinced that after the infection once starts in a single place, it travels from that into the kidney itself That is something we are working on now, the intrarenal lymphatics That is the only way in which we can explain some of these cases in which there are five or six foci not connected with each other I believe the same thing is true of tumors If a hypernephroma starts in one portion of the kidney we can explain its spread to distant parts in that way Dr Koll stated that he found a glomerulitis and no evidence of inflammation I cannot reconcile the two statements

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TWO CASES OF TRICHOPHYTOSIS BARBAE CURED BY THE USE OF STRICKLER'S RINGWORM VACCINE*

M F ENGMAN, M D, AND R A McGARRY, M D, ST LOUIS

Owing to the results obtained by the use of Strickler's ringworm vaccine[1] in two cases so treated, it is felt that their publication may be of stimulating interest In undertaking the treatment of these cases, both of *Trichophyton megalosporon-ectothrix,* little hope was entertained that the results would be so striking, as the directions for use in the package kindly sent us by Dr Strickler stated that practically all the cases in which it had been used were of the microsporon type

The patients under discussion were both Italians, swarthy, with coarse skins and black, heavy beards

CASE 1—F F, aged 22, freight handler, with negative physical examination, first became aware of the trouble four weeks previous to his entrance into the hospital A small pustule appeared on the lower lip This was soon followed by others, and the disease rapidly spread over the entire bearded region of the face (Fig 1) Various remedies were tried, with no result

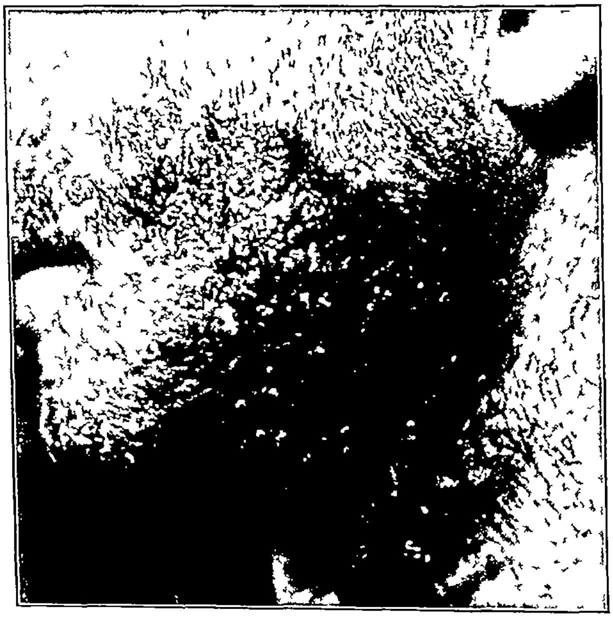

Fig 1—Before use of vaccine

With the exception of the small area around the mouth and that just in front of the ears, the entire bearded region of the face and neck was involved and there was a similar area on the left forearm The beard was long and had not been shaved for two weeks The face was swollen There was some redness, with local edema, and the lesions were all infiltrated, particularly in the submental region A large number of yellow pustules involving the hair follicles covered the entire face In some places they were clumped into little tumors or nodules The hairs were so easily extracted that they came out with the plain petrolatum dressing

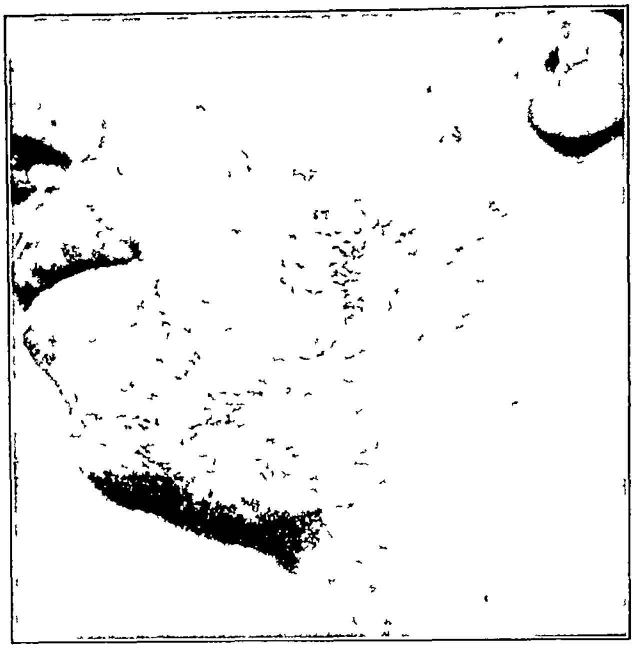

Fig 2—After use of vaccine

CASE 2—S C, aged 27, laborer in a spaghetti factory, could impart little of his history, as he only spoke an Italian patois Physical examination was negative It was learned later that two other males in the family had similar trouble

On entrance to the hospital the right side of the face was greatly swollen, with a suggestion of abscess formation at a point just inferior to the angle of the jaw Considerable inflammation and a slight amount of induration were present Minute pustules were noted around the base of the lesion and scattered over it, pierced by a hair An area about the size of a half-dollar had become almost denuded of hairs in the tip of the tumor, and the pus came from some of the follicles in this area Around the border of the clear area were small verrucose growths, giving it a cobblestone appearance

Microscopic examination of both cases disclosed the *Trichophyton megalosporon-ectothrix* fungus

Both patients remained in the hospital throughout the treatment Nothing was applied locally except plain petrolatum The period between injections was six days All injections were made subcutaneously between the scapulae

Patient 1, March 18, was given an initial dose of a full ampule 2 c c, of the vaccine as prepared by Dr Strickler

March 21, the temperature of the patient was 100 F , March 23, normal On the evening of this day, however, the patient complained of a severe pain in the upper right abdominal quadrant The temperature rose to 100 5 F The surgeon was called in consultation, and a diagnosis of acute cholecystitis was made Hot packs and the usual remedies were applied, and the patient immediately recovered

He was given a second ampule, March 28, when the face began to improve The inflamed appearance had markedly decreased and the edema had subsided

May 13, the patient was dismissed cured, there being no evidence whatever of the disease (Fig 2) Six injections, in all, were administered

Patient 2 was given an initial dose of 2 c c of Strickler's vaccine, March 18

There was a slight local reaction March 21, the temperature rose to 101 F and gradually subsided by March 24

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* From the Barnard Free Skin and Cancer Hospital

[1] Strickler Albert The Vaccine Treatment of Ringworm of the Scalp THE JOURNAL A M A July 17 1915 p 224

There seemed to be some increase in the swelling, the tissues felt more infiltrated, and the patient complained of considerable pain

The second injection was given March 24, after which no reaction followed Improvement had, however already appeared in the lesion The swelling was gradually subsiding, March 30, when the last injection was given

The patient was discharged, May 13, entirely free of the disease

The results in these two cases have been striking and, of course, far superior and far more quickly obtained than by any other method we have heretofore used

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DECOMPRESSION CRANIOTOMY IN BULLET WOUND OF BRAIN AND HEMIPLEGIA

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History—D M, man, aged 74, born in Ireland, of small stature, weight 120 pounds was brought to the Polyclinic Hospital in the evening of Jan 16, 1916 He was perfectly conscious, and gave his history frankly without showing any great excitement or any evidences whatever of shock He said that two men entered his small basement store and at the point of a revolver demanded money He gave them what he had, and in leaving one of them fired at him, striking him in the face just below the left eye Almost immediately he lost the sight of the left eye

Examination—Just below the left eye was a small ragged wound, the size of a bullet, from which blood was freely oozing There was also considerable hemorrhage from the left nostril This was controlled by packing the nose with gauze, but even then it continued to ooze for two or three hours afterward The temperature was 99, pulse 85 respiration 20 The left pupil was widely dilated, and did not react to either light or accommodation The wound was thoroughly cleansed, and with a probe, the course of the wound was determined to be upward and inward to the orbital bone No further attempt was made to locate the bullet For drainage a small piece of folded rubber tissue was inserted into the wound and a sterile dressing applied Three thousand units of tetanus antitoxin as a prophylactic dose were given intramuscularly, after which the patient was admitted to the ward on the service of Dr William Sharpe

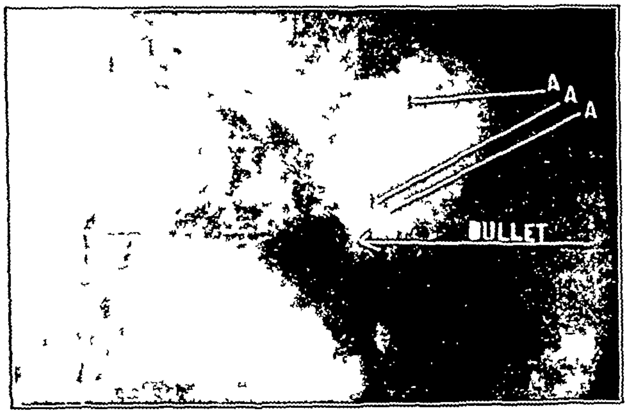

Fig 1—Location of bullet and fragments along its course *A A A* silver wireclips placed over branches of middle meningeal artery in the dura at the time of operation

The following morning January 17 we found the patient with a complete right-sided hemiplegia There were no signs of aphasia there were a Babinski reflex of the right foot and beginning signs of medullary compression The temperature was 100 pulse 60 respiration 16

The cerebrospinal fluid by lumbar puncture was found by measurement under pressure and blood tinged

Ophthalmoscopic examination revealed slight obscuration of the optic disk of the right eye, more marked on the nasal half

These signs were present 1 Hemiplegia of right side 2 Beginning signs of medullary compression, as evidenced by lowered pulse rate, rise in temperature and diminished respiration 3 The cerebrospinal fluid under pressure, shown by lumbar puncture and ophthalmoscopic findings

The combined symptoms and signs of hemorrhage on the brain together with other clinical signs, were also positive

Fig 2—Patient Oct 10, 1916, aged 75

Operation—I performed a left cranial decompression A vertical incision was made in the skin from a point just above the zygoma, on the left side about one-half inch anterior to the external auditory meatus upward about 3 or 4 inches to the middle of the parietal crest The temporal fascia and muscle were incised longitudinally and retracted care being taken not to tear away the attachment of the muscle to the parietal bone and thereby weaken its closure With a Doygen perforator and burr a small opening was made in the lower and thinnest portion of the squamous portion of the temporal bone With rongeurs the bone was cut away as far back as the retracted muscle would permit in an oval shape to the diameter of 2 or 3 inches The dura appeared tense and distinctly bluish underneath When it was incised, quite a quantity of free dark blood escaped, but no clots were found After the flow of blood ceased there was no evidence to be seen of any injury to the cortex No attempt was made to search for the bullet (the location of which is shown in Figure 1) The dura was opened in a stellate manner and left so A folded rubber tissue drain was placed in the lower angle of the wound subdurally into the middle fossa, then muscle, fascia and skin were securely sutured Sterile dressing and roller gauze bandage were applied to the head and the patient returned to bed in good condition The temperature was 99 6 the pulse 78, and the respiration 22

Postoperative Course—The wound healed by primary union There was temporary incontinence of urine and feces A discharge from the left eye ceased February 1 The left eye was totally blinded There was no impairment of vision of the right eye March 19, the patient was discharged with complete use of the right arm and hand, he still walked with the aid of a cane but did not drag the foot He has now passed his seventy-fifth birthday (Fig 2) walks without a cane, is as mentally bright as before his accident and continues to carry on his business—a small grocery store He does not drag his feet and has a firm grip to his right hand The present weight is 118 pounds

SUMMARY

The patient has always lived a temperate life, but his complete recovery, I believe, can be summarized as follows

1 Prompt surgical relief of intracranial pressure before the onset of medullary edema with signs of compression or shock

2 Release of subdural hemorrhage before any injury to the cortex from irritation by the formation of blood clots

3 Selection of the subtemporal route with vertical incision for the decompression operation thereby giving best opportunity for drainage and also perfect closure over the removed bone area

175 West Seventy-Second Street

COAGULATION TIME OF THE BLOOD IN PNEUMONIA *

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AND
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A recent article in The Journal[1] on the coagulation of the blood in pneumonia seems to us rather misleading, not only in its deductions but also in the methods employed

Anders and Meeker determined the coagulation time by obtaining blood from puncture of the ear or finger Any such method of obtaining blood for determining the coagulation time is so clearly open to error that it should be discarded While the method of obtaining blood by venous puncture and allowing it to clot either directly or by recalcifying the oxalated plasma at room temperature in glass tubes evidently intrudes artificial conditions, which doubtless interfere somewhat with accuracy, nevertheless it can be emphatically stated that the obtaining of blood by rapid venous puncture is a necessary step in making observations of any value on the coagulation time of the blood [2]

The main reason for insistence on this point is that all tissues contain a substance (tissue juice, thrombokinase, thromboplastin, cytozyme, etc), which is a potent factor in coagulation and is similar to the action of the blood platelets, which markedly hasten coagulation of the blood For the purpose of determining coagulation time, blood should be obtained in as near the natural state as possible, so that the platelets, etc , are not unduly altered or the initial stages of coagulation unduly hastened Tissue puncture of the ear or finger necessarily introduces some of the "tissue juice" into the blood and allows the blood to be unnecessarily altered and thus vitiates observations of coagulation time

Lee and White,[3] among others, have already shown that a normal coagulation time of blood from the ear is of no significance unless delayed We have repeatedly observed a normal coagulation time when blood was obtained from the ear, but a delayed time when blood was properly obtained from a vein In cases of hemophilia, for example, blood from a vein showed a marked delay in its coagulation time, while blood from the ear frequently clotted in normal time There is, of course, no doubt that the true coagulation time is usually markedly prolonged in true hemophilia From such observations it seems clear to us that the coagulation time should always be determined with blood drawn by a clean puncture of a vein rather than with blood by puncture of the skin with the inevitable introduction of additional coagulating factors

Anders and Meeker[1] found the coagulation time of the blood in pneumonia shorter than normal before the crisis and essentially normal after it On the other hand, other workers, and particularly Dochez,[4] to whom they make no reference, showed quite the reverse condition Dochez found during the disease usually a delay, never a shortening in the coagulation time, which became normal shortly after the crisis Dochez suggested that, together with the recognized increased fibrinogen in the blood in pneumonia, there might be an increase in antithrombin to account for the delayed coagulation time Dochez used a careful and excellent technic for determining the coagulation time of the blood, which was drawn from a vein Our results from a study of twenty cases (six previously reported[5]) which were obtained by a similar though cruder method[3] in that ordinary small glass tubes were used and the observations were made at room temperature, are entirely in accord with those of Dochez We never found the coagulation time less than normal It was nearly always delayed, at times quite markedly so, more usually in very sick patients The coagulation time became essentially normal shortly after the crisis Our figures show variations from six and one half to thirty-eight minutes, usually from fourteen to eighteen minutes for the coagulation time in the cases of pneumonia before the crisis A long series of normal controls vary between five and ten minutes

Our observations have not as yet reached a point at which we feel that we can state positively the exact nature of the interference with the normal complicated mechanism of coagulation which prolongs the coagulation time in pneumonia We have, however, made the following observations on the blood in pneumonia The clots retracted in apparently normal fashion Some clots retracted rather weakly, coincident with a diminished number of platelets The reclotting phenomenon was observed in three cases in which a marked delay in the coagulation time was noted This reclotting phenomenon in the blood of pneumonia is quite similar to some other observations (reported[5] and unreported) in other groups of cases which showed a delayed coagulation time The red cells in the oxalated plasmas of our cases settled out with remarkable rapidity, and this also frequently occurred in the whole blood, as shown by the white character of the upper part of the clot even in those bloods which clotted in but slightly delayed time This phenomenon is perhaps associated with an altered viscosity of the blood In twelve of our cases the prothrombin time[6] (the time required for a given amount of oxalated plasma to clot in the presence of the optimum amount of calcium) was estimated and, like the coagulation time, was usually delayed, although our impression is that it was usually relatively less delayed than the coagulation time

The optimum amount of calcium required to determine the prothrombin time was the same for the pneumonia plasmas as for the controls, thus illustrating that there was ample available calcium for the purposes of coagulation [7] The antithrombin, determined by a modification of Howell's method,[8] was usually normal, in some cases high, and rarely slightly diminished These variations are unexplained They did not occur in any definite relation to the prothrombin time or the coagulation time The fibrinogen was increased, as has often been observed In three instances in which we found the antithrombin normal but the prothrombin time and coagulation time delayed, it was noted that the oxalated plasmas of the pneu-

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* From the Medical Service of the Massachusetts General Hospital

[1] Anders J M and Meeker G H Coagulation Time in Lobar Pneumonia The Journal A M A Nov 25 1916 p 1591

[2] Howell, W H The Condition of the Blood in Hemophilia Thrombosis and Purpura Arch Int Med January 1914 p 76 See also Footnotes 3 and 4 and other references given there

[3] Lee and White Am Jour Med Sc 1913 **114** 495

[4] Dochez, A R Jour Exper Med 1912 **16**, 692

[5] Minot G R and Lee R I The Blood Platelets in Hemophilia, Arch Int Med , October 1916, p 474

[6] Minot G R Denny G P and Davis Daniel Prothrombin and Antithrombin Factors in the Coagulation of Blood, Arch Int Med , January 1916 p 101 Minot G R Jour Med Research 1916 **33**, 503

[7] Minot Denny and Davis (Footnote 6) Lee R I and Vincent Beth The Relation of Calcium to the Delayed Coagulation of Blood in Obstructive Jaundice Arch Int Med July 1915 p 59

[8] Minot Denny and Davis (Footnote 6)

monia blood clotted slightly faster than the control plasmas when equal suitable amounts of either a fresh suspension of blood platelets or kephalin (active thromboplastic substance) solution were added with appropriate amounts of calcium. One possible explanation is that with the excess of fibrinogen there is presumably some other altered relationship in the character or amount of other coagulating factors, so that when any one substance which accelerates the coagulation is introduced into the plasma, the initial stage of coagulation is more readily started or more quickly completed.

Furthermore, with perhaps an excess or altered character of the factors entering into the late stages of coagulation in which fibrinogen participates, the complete coagulation time is shortened. Such might explain the results obtained by Anders and Meeker, since by their technic there must have been introduction of some "tissue juice" and some undue modification of the platelets. Under these circumstances, the first stages of coagulation were perhaps completed in normal fashion, and the later stages were permitted to proceed more rapidly than normal. This would suggest that in the blood in pneumonia there may be a lack of the substance akin to "tissue juice," or increased need of it. With the methods used by Dochez and ourselves, there is much less interference with the initial stages of coagulation, and consequently we have found the coagulation time quite constantly delayed in our cases of pneumonia.

A few words in regard to the role of calcium may not be out of place, since Anders and Meeker discuss the role of calcium in coagulation.

The importance of calcium in coagulation has long been recognized. Because calcium can be readily administered, it has been used widely as a therapeutic agent in all sorts of pathologic hemorrhage. There is much confusion concerning the efficiency of calcium therapy. Most of the reports are without value, as they are either frankly clinical or depend on tests of coagulation time of blood taken through the tissues. In observations of pathologic coagulation of blood, at the bedside, in experimental animals and under all sorts of abnormal conditions in the test tube in the laboratory, we have so far been able to ascribe only one condition of abnormal coagulation time of clinical significance to a lack of calcium. The condition is common in obstructive jaundice of several weeks' duration. In this condition the amount of calcium is actually increased, but there seems to be insufficient calcium available for purposes of coagulation. This lack of available calcium can be corrected by the administration of large doses of calcium salts clinically, in the test tube and in experimental animals.

CONCLUSIONS

The determination of coagulation time of blood is at best uncertain under the necessarily artificial conditions of any test. Determination, however, of the coagulation time of blood obtained by neat technic from venous puncture seems to be reasonably accurate. Observations of coagulation time of blood taken through the tissues is obviously unreliable. The coagulation time of blood in pneumonia is generally prolonged. The deduction on the basis of tests made by ear puncture that the coagulation time of blood in pneumonia is shortened is unwarranted.

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DOES THE SPINAL FLUID FROM HUMAN POLIOMYELITIS CONTAIN THE SPECIFIC INFECTIVE AGENT?*

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Repeated attempts to demonstrate the virus of poliomyelitis in the spinal fluid of human poliomyelitis both by cultures and by animal inoculation have all proved negative. Flexner and Lewis[1] have demonstrated its presence in the spinal fluid from an infected monkey drawn three days after the time of the intracerebral injection of virus. This fact suggests that it may be present in the fluid at some stage of the incubation period. If it is present, it is probable that it diminishes rapidly with onset of the symptoms, but may not wholly disappear. It is possible that the virus is present in the later stages in such minute quantities that it cannot be demonstrated by animal inoculation.

Nuzum and Herzog[2] have recently reported the finding of a gram-positive coccus in 90 per cent. of the spinal fluids from positive cases of acute poliomyelitis. This organism was isolated with apparent ease, even from spinal fluids withdrawn several weeks after the onset of paralysis. The organism was grown under aerobic conditions and subcultures grew readily on glucose agar slants.

During the epidemic in New York City, this laboratory cultured upward of 1,200 fluids from patients with acute poliomyelitis in all stages of the disease. The medium used was 1 per cent. glucose ascites agar under aerobic conditions. Except for a few evident contaminations, our cultures remained sterile.

The experiment here recorded was undertaken to determine whether or not the aggregate of a number of spinal fluids from positive cases of human poliomyelitis contains sufficient virus to infect a monkey.

The fluids from forty patients with poliomyelitis were centrifuged at high speed for three quarters of an hour. As our clinical work consists chiefly of the diagnosis of suspicious cases, these fluids were derived from cases early in the disease, most of them in the preparalytic stage. The sediments, amounting to 1 c.c. of very turbid fluid, were injected intracerebrally into Rhesus 23. Culture tubes of glucose ascitic agar inoculated with some of the sediment remained sterile.

No effects were noted, and after an observation period of two months, this animal was inoculated with 0.5 c.c. 10 per cent. suspension of VII gen. monkey virus. After an incubation period of eleven days, paralysis appeared in the left leg. The paralysis then involved the right leg but failed to progress further. The animal is alive and improving.

CONCLUSION

It would appear from the foregoing experiment that there is present little, if any, virus demonstrable either by culture or animal inoculation in the fluids of human poliomyelitis in the early stages.

216 East Fifteenth Street.

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* From the Bureau of Laboratories, Department of Health, City of New York.

[1] Flexner, Simon, and Lewis, P. A.: Experimental Epidemic Poliomyelitis in Monkeys, The Journal A. M. A., April 2, 1910, p. 1140.

[2] Nuzum, J. W., and Herzog, Maximilian: Experimental Studies in the Etiology of Acute Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, p. 1205. Nuzum, J. W.: Bacteriologic Findings in Cerebrospinal Fluid in Poliomyelitis, The Journal A. M. A., Nov. 11, 1916, p. 1437.

LONG NITROUS OXID OXYGEN ANESTHESIA REPORT OF CASE

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The opinion seems to prevail among those who have had no experience with gas' anesthesia that it is useful only in minor surgery, for operations requiring only a brief anesthesia and for operations of necessity on patients who cannot withstand the depression or acidosis produced by ether or chloroform Those who have done considerable operating under nitrous oxid oxygen anesthesia know this opinion to be a fallacy Almost any operation can be done under it, and it should unquestionably be the anesthesia of choice where there is the least possibility of the patient's chances of recovery being lessened by operative shock or postoperative depression or acidosis Cases in which it has been used in major surgery for operations of from one and a half to three hours are by no means rare A few cases of four hours' duration have been reported But as far as my search of the literature has disclosed there is no case on record as long as the one herewith reported—four hours and forty minutes

REPORT OF CASE

History—Mrs H, aged 72 well developed, admitted May 2 1916 had acute intestinal obstruction A diagnosis of carcinoma of the sigmoid was made The cecum was enormously distended with fecal matter Cecostomy and appendectomy were done under nitrous oxid oxygen, the operation lasted ninety minutes and anesthesia was uneventful The patient was discharged May 13, with an artificial anus Since then she had had complete obstruction of the lower bowel She was readmitted, October 9, for sigmoidectomy and closure of the fecal fistula Operation was performed, October 10 under nitrous oxid-oxygen anesthesia, preceded by morphin sulphate, ⅙ grain hypodermically An incision in the left lower quadrant was 'blocked" by novocain, 1 400 and quinin and urea hydrochlorid, 1 500 Sigmoidectomy was performed with great difficulty, and then a lateral anastomosis of the colon The incision was closed The old cecostomy wound was then opened without 'nerve block" and portions of the cecum and ileum were found to be bound in an indescribable mass and riddled with sloughed openings It was necessary to perform three separate anastomoses removing as many portions of the bowel

Anesthesia—Induction proved a trifle difficult owing to spasm of the jaws and unfavorable condition of the teeth This rendered breathing difficult and unsatisfactory until relieved by insertion of a Ferguson-Hewitt artificial airway after which respiration was quiet and even Operation was begun five minutes after the anesthetic had been started Three and one half ounces of ether were used throughout the four hours and forty minutes, being administered with the gases at irregular intervals chiefly during the early part of the first stage of the operation, to secure greater relaxation of muscles The patient's color remained good throughout (after insertion of the airway), and the highest respiration rate was 32 The preanesthetic pulse was 84, and the rate did not go above 100 until the last half hour, being 116 immediately after the anesthetic No stimulants were employed until within fifteen minutes of the end of the operation, when 20 drops of camphorated oil were given, followed in five minutes by ⅙ gram of morphin sulphate There was only occasional retching and no vomiting except once immediately after the anesthetic was removed The patient was conscious and replied to questions five minutes after

Postoperative Course—The patient left the operating room at 3 10 p m, the pulse was 116, and respiration 26 The feet and legs were slightly cold and cyanotic, though the entire skin was dry At 4 p m, the patient complained of dyspnea Atropin sulphate ¹⁄₁₀₀ grain was given hypodermically The patient complained of being too warm

At 4 25 p m, the pulse was 112 and respiration 20 Oxygen inhalation was given for five minutes

At 5 p m the pulse was 114, respiration 20 and temperature 97 The color and skin condition were good From this time to 11 30 the patient continued in remarkably good condition Just before midnight the pulse became rapid and thready, respiration progressively labored, and temperature rising From then on there was only brief response to stimulation, and symptoms suggested acute cardiac dilatation Death occurred at 5 30 a m

COMMENT

In just what degree, if any, the long anesthesia contributed to the fatal termination can only be conjectured The case is cited to show that long sustained nitrous oxid oxygen anesthesia is feasible, and that difficult operations can be performed under it which could not be completed under ether or chloroform

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DELIVERY UNDER GAS AND OXYGEN OF TWO PATIENTS WITH LOST CARDIAC COMPENSATION

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Case 1—Mrs F S aged 32 sextipara, had had measles when a child, no illness since and no history of rheumatism or infectious disease For three years she had been troubled with dyspnea and swelling in her limbs so that it was difficult to do her housework For the past seven months she had been unable to walk or to sleep except when sitting up Edema increased steadily

Examination on admission to the Buffalo General Hospital revealed great edema of the feet legs thighs, vulva, abdomen and face The heart was dilated and very irregular The apex beat was just outside the anterior axillary line A systolic murmur was heard over the entire cardiac area The hemoglobin was 58 per cent The urine showed a trace of albumin and a few granular casts A diagnosis of mitral insufficiency with lost compensation was made

The patient had been pregnant eight and a half months She had had no difficulty in her five previous labors, and her pelvic measurements were normal For nine days after admission she was in the medical ward in the service of Dr De Lancey Rochester and by the Niemeyer pill and strychnin the edema was somewhat reduced and the dyspnea slightly improved, though she still had to sleep in the sitting posture

When her labor commenced she was transferred to the obstetric service She stood the first stage pains fairly well, but when expulsive efforts began at the end of dilatation, she became cyanosed and almost pulseless I decided on version and extraction, and as ordinary anesthesia was out of the question, she was brought to the end of the delivery table in a sitting position nitrous oxid and oxygen were administered, and she was delivered of a full term living child in five minutes by version She stood the gas and oxygen nicely, and in the week following improved rapidly being able to sleep lying down and having little dyspnea On the ninth day after confinement while perfectly quiet, she suddenly developed acute cardiac dilatation and died six hours later

McKenzie states that a pregnant woman with lost compensation is in danger of acute dilatation for at least two weeks after delivery

Case 2—Mrs N B, aged 43 primipara, had had a mitral regurgitation for five years She had attacks of cholecystitis at intervals Eleven years before she had had a ventral suspension done for retroversion For three months she had noticed edema of the feet and legs, and had had to sleep sitting up on account of dyspnea

The heart was dilated and irregular The apex beat was 1 inch outside the nipple line The child was lying in the transverse position, probably on account of traction on the fundus from ventral suspension As the patient was a primipara, version and extraction could not be considered, and cesarian section under gas and oxygen seemed the safest

Three days before her estimated date of confinement, I did a high Davis operation and delivered a living full term child The operation was completed in thirty-five minutes under light gas and oxygen anesthesia and the patient made an uneventful recovery, leaving the hospital in two weeks

I am reporting the delivery of these two patients under gas and oxygen as I think neither patient would have survived an ordinary labor with any of the anesthetics ordinarily used

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 461)

Nephritis

DISTURBED FUNCTION IN NEPHRITIS

Aschoff[72] states that the majority of primary contracted kidney cases develop as a result of vascular disturbance, "a sclerosis of the finest branches of the renal artery beginning relatively early in life and leading secondarily to the formation of atrophic foci in the parenchyma and to hyaline degeneration of the glomeruli, with a resultant focal inactivity and atrophy of the tubules belonging to them " The whole process is slow and passive This slowly developing sclerosis of the fine arteries of the kidneys causing typical Bright's disease is not similar to the arteriosclerotic kidney of later life, when aortic disease precedes it, as in the latter case some parts of the kidneys may not be involved It is self-evident that the more filter tissue incapacitated by arteriosclerosis the more efficient must be the circulation in the healthy parts of the filter Hence the high blood pressure, cardiac hypertrophy and polyuria is nature's compensatory mechanism Furthermore, the healthy glomeruli of the kidneys may hypertrophy so as to make the excretion from the kidneys sufficient without the assistance of the impaired sections

In secondary contracted kidneys the previous history is that of an inflammation In these cases the whole kidney filter is involved and the kidneys cannot react to any emergency demand on them, hence edema and uremia frequently occur Usually a diminished amount of urine is passed, sometimes resulting in polyuria In this condition the metabolism is the same as in primary contracted kidneys, namely, there is increased blood pressure, etc

Tests of function will show the ability of the recovered or still intact portions of the kidney to excrete, but do not show the excretory ability of the scar tissue It has also been demonstrated by Baetjer[73] that in certain conditions of nephritis there may be not only a normal but also an increased eliminative power at some particular period Hence one test, and even a repeated test with one substance, is not sufficient to demonstrate the health of the kidneys

In the secondary contracted kidney the tubules connected with each diseased glomerulus gradually lose their power to function, to a greater extent than in primary contracted kidneys The larger the number of glomeruli impaired or entirely incapacitated, the less the amount of urine excreted The polyuria of hypertension and the consequent increased circulation in the unimpaired glomeruli should not be confounded with the polyuria caused by irritative toxins which injure the filter apparatus Rapid impairment of normal function occurs in acute nephritis

Oertel does not find that the amount of contraction of the kidneys bears any relation to the amount of cardiac hypertrophy

Unless there is urea and nonprotein nitrogen retention in the blood, some other cause than kidney lesions is usually responsible for hypertension Lead, once a common cause of contracted kidneys, is now of little importance ordinarily, as workers in lead exercise more care than formerly Accidental chronic lead poisoning, however, from water pipes, hair tonics, etc, is still not of uncommon occurrence, although this cause of chronic nephritis, arteriosclerosis or other systemic disturbance is probably many times overlooked

Ophuls[74] says that subacute and chronic glomerulonephritis, in the majority of cases, is due to chronic sepsis, hence the danger, long unrecognized, of chronic infection of the mouth, nose and adjacent sinuses After the study of a thousand necropsies, Ophuls reaches the conclusion that the amyloid kidney, subacute and chronic (the so-called large white kidney) is also the usual result of chronic sepsis

An interesting estimate of the general resistant power of the system in the nephritis of acute infections is suggested by Carles and Mauriac,[75] namely, that the more serious the infection, the more fragile the leukocytes, also that leukocytes break down more readily in nephritis than in health This difference in their fragility in nephritis and in health, with the same technic, they find to be 50 per cent Consequently, even a mild complication of nephritis in acute infection makes the prognosis grave

Probably all poisons act primarily on the different parts of the convoluted tubules, the resulting variations in function being due to the parts of the kidneys most affected and to the effect on the blood pressure

PRACTICAL INTERPRETATIONS OF EXPERIMENTAL NEPHRITIS

Uranium is perhaps the irritant most frequently used to produce experimental nephritis Fitz[76] has shown that in acute uranium nephritis in rabbits the excretion of amylase is reduced and the nonprotein nitrogen of the blood is increased during the inflammation, but that the excretion returns to normal as the kidneys heal

Mosenthal[77] has shown that all grades of nitrogen retention may be caused by varying the dose of uranium With large doses the nitrogen excretion is diminished With small doses the nitrogen not only may remain normal, but even may be increased This he thinks may be due to the irritant causing a greater destruction of nitrogen in the body He believes that a greater excretion of nitrogen by the intestine does not necessarily mean a vicarious elimination, representing, perhaps, only an increased nitrogen metabolism The nitrogen output in the urine may be decreased even when the bulk of urine passed is sufficient This seems to indicate that nitrogen is excreted by the convoluted tubules, but does not prove that the circulation of the glomeruli is not disturbed in uranium nephritis

Underhill,[78] and later Underhill in collaboration with Wells and Goldschmidt,[79] showed that subcutaneous injections of sodium tartrate caused degeneration of the tubular epithelium From later experiments he concludes that the convoluted tubules excrete urea, and that the glomeruli excrete chlorids and water

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[72] Aschoff Ludwig The Pathogenesis of the Contracted Kidney Arch Int Med December 1913, p 723

[73] Baetjer W A Superpermeability in Nephritis Arch Int Med June 1913 p 593

[74] Ophuls William Subacute and Chronic Nephritis as Found in One Thousand Unselected Necropsies Arch Int Med, February 1912 p 156

[75] Carles and Mauriac Jour de med de Bordeaux, 1913 **43** No 18

[76] Fitz R The Relation Between Amylase Retention and Excretion and Nonprotein Retention in Experimental Uranium Nephritis Arch Int Med April 1915 p 524

[77] Mosenthal, H O Nitrogen Metabolism and the Significance of the Nonprotein Nitrogen of the Blood in Experimental Uranium Nephritis Arch Int Med December 1914 p 844

[78] Underhill Jour Biol Chem **12** 115

[79] Underhill Wells and Goldschmidt Jour Exper Med **18**, No 4

Oertel,[80] in reviewing the subject of experimental nephritis, finds that when the sodium chlorid excretion is interfered with the urine concentration is low, when there is a diminished amount of urine excreted lactose excretion is slow, but sodium chlorid and potassium iodid excretion is normal, and in these instances the trouble is largely vascular, and when there is polyuria there is vascular hypersensitiveness

More recently Myers, Fine and Lough[81] have studied the retention of creatinin, uric acid and urea in the blood in nephritis, and conclude that a uric acid retention without urea or creatinin retention shows early interstitial nephritis Later in the disease urea is retained, and still later, creatinin Kraus[82] had already shown that creatinin is more or less retained in acute uranium nephritis

Frothingham, Fitz, Folin and Denis[83] found that in uranium experimental nephritis the excretion of phenolsulphonephthalein and the nonprotein and urea retention in the blood followed the course of the inflammation and returned to normal when the kidneys healed, and varied with the amount of kidney tissue involved The recovery of the permeability of the kidneys to phenolsulphonephthalein may be rapid in this experimental nephritis, the test showing the condition of the kidneys at that particular period, but nonprotein nitrogen and urea may be much longer retained in the blood, and consequently the blood test for nonprotein nitrogen is a more positive indication of the condition of the kidneys

Other poisons used in causing experimental nephritis or which accidentally cause acute irritant nephritis are chromium, mercuric chlorid, cantharides, croton oil, sodium arsenate and crotalus venom

Without edema there is probably no retention of chlorids

It seems to have been demonstrated[84] that, in experimental nephritis, diuretics, even the simplest, are irritant and harmful to the kidneys, and even if there is temporarily an increased output of urine and solids, there soon is a diminution of this output, and the lives of the animals are shortened This coincides with the clinical findings that in most cases of nephritis, certainly in all cases of acute exacerbations in chronic nephritis and in acute nephritis, diuretics are harmful

It seems to have been demonstrated that anything which increases the creatinin of the blood in nephritis, as muscular exertion or physical strenuosity, or infection or fever, adds to the danger from the kidney disease

Brown[85] showed that hematin poisoning of the kidneys may occur during severe malarial intoxication, and that all grades of degeneration of the tubular epithelium may occur, with albumin, casts and blood in the urine

Leopold and Bernhard[86] find that the nonprotein nitrogen of the blood, and the phenolsulphonephthalein test have the same values during health and in renal disease in children as in adults

Zondek[87] believes, after carefully studying children with nephritis and with orthostatic albuminuria, that if the nephritis is of the vascular type and the glomeruli unable to excrete sodium chlorid and urea, the tubules assume this extra work Hence, if the intake of salt is reduced, the tubules are better able to attend to excretion of nitrogenous substances, therefore, in glomerular inflammation, that is, vascular disturbances, it is not necessary to exclude nitrogen and salt from the diet at the same time In other words, if proteins are temporarily excluded from the diet, a little salt may be allowed Zondek found that by excluding salt the residual nitrogen of the blood was greatly reduced These findings suggest variations in diet

O'Hare[88] has studied the excretion of sodium chlorid, nitrogen and water in nephritis In normal individuals he found that on an increased sodium chlorid and nitrogen diet the urinary excretion became normal in forty-eight hours, but with diseased kidneys it may not return to normal in this period He finds that the excretion of sodium chlorid generally is impaired in nephritis before there is much disturbance of water or nitrogen excretion The excretion of nitrogen is greatly impaired only in severe cases Excretion of sodium chlorid, water and nitrogen may be impaired in mild cases, even with normal phenolsulphonephthalein excretion and normal nonprotein nitrogen of the blood

ANESTHESIA AND KIDNEY FUNCTION

It should be remembered that renal function as evidenced by one test of the phenolsulphonephthalein output is not sufficient, as this varies daily in a given patient If the phenolsulphonephthalein was markedly retained, one test would be sufficient as indicative of the condition of the kidneys, as far as anesthesia was concerned In advanced age the excretion of phenolsulphonephthalein is slower than normal, and this should be considered in operations on the aged

Renal function as estimated by the phenolsulphonephthalein test has been found by Miller and Cabot[89] to be generally decreased in operations under ether, and is especially decreased after laparotomies The decrease is best noted in the first twelve hours after the operation, and the more ether used and the longer the operation, the greater the decrease in the excretion of phenolsulphonephthalein, even to total inhibition in some instances Shock (low blood pressure) caused a marked decrease The lower the vitality of the patient, as from some serious condition like cancer, the more sluggish the phenolsulphonephthalein output They found no definite relation of the decrease of phenolsulphonephthalein excretion to postoperative albuminuria

Slemons and Morriss[90] have shown that the rest nitrogen is increased in both maternal and fetal blood after chloroform anesthesia

(To be continued)

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[80] Oertel Horst The Classification of Nephritis Arch Int Med June 1913 p 653

[81] Myers V C Fine M S and Lough W G Significance of Uric Acid Urea and Creatinin of Blood in Nephritis Arch Int Med April 1916 p 570

[82] Kraus W M The Effect of Uranium Nephritis on the Excretion of Creatinin Uric Acid and Chlorids and the Effect of Creatinin Injections During Uranium Nephritis Arch Int Med June 1913 p 613

[83] Frothingham C Jr Fitz R Folin Otto and Denis W The Relation Between Nonprotein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis Arch Int Med September 1913 p 245

[84] Christian, H A and O Hare J P A Study of the Therapeutic Value of a Diuretic (Theobromin Sodium Salicylate or Diuretin) in Acute Experimental Nephritis Arch Int Med May 1913 p 517 O Hare J P The Effect of *Theobromin* Sodium Salicylate in Acute Chromate Nephritis ibid June 1915 p 1053

[85] Brown W H The Renal Complications of Hematin Intoxication and Their Relation to Malaria Arch Int Med September 1913 p 15

[86] Leopold J S aud Bernhard A Nonprotein Nitrogenous Constituents of Blood and Phenolsulphonephthalein Test in Children Am Jour Dis Child June 1916 p 432

[87] Zondek Ztschr f klin Med 1915 **72**

[88] O Hare J P Study of Salt Nitrogen and Water Excretion in Nephritis Arch Int Med June 1916 p 711

[89] Miller R H and Cabot Hugh The Effect of Anesthesia and Operation on the Kidney Function as Shown by the Phenolsulphonephthalein Test Arch Int Med March 1915 p 369

[90] Slemons and Morriss Johns Hopkins Hosp Bull December, 1916 p 343

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SATURDAY, FEBRUARY 17, 1917

THE VENTILATION OF THE LUNGS IN PNEUMOTHORAX

In his well known essay on the factors of safety in the living organism, Meltzer[1] called attention to Nature's extravagance in furnishing most of the important organs with a large surplus of tissue above the amount necessary to perform their ordinary physiologic tasks This provision is a great blessing, serving to avert many a disaster which might follow impairment or a greater scantiness of functional matter Meltzer reminded us that life may continue though a great part of the lungs is destroyed, if only the disease which caused the destruction comes to a standstill In some cases of pneumonia one lung can be entirely consolidated without seriously impairing the process of ventilation Furthermore, a patient whose thorax is freely opened to evacuate a one-sided pleural abscess has less dyspnea after the opening than before In empyema, as in pneumonia, it is essentially the infection and intoxication with their reactions which cause the apparent disturbance in the respiratory mechanism, and not so much the mechanical interference with the ventilation of the corresponding lung Since the classic experiments of Regnault and Reiset, many investigators have stated that compression of one lung, or a unilateral pneumothorax, exerts little influence on the respiratory exchange of gases

An even more specific and, so to speak, quantitative study of this question has been reported in connection with an attempt to find out on man what effect a great reduction in the functioning lung surface would have on the various factors of respiration The observations were made in persons with pneumothorax by Means and Balboni[2] at the Massachusetts General Hospital, Boston They make it evident that at rest all the factors of respiration, gaseous exchange, carbon dioxid tension, and the mechanical factors, are normal in persons with a collapsed lung, that the well known reaction to carbon dioxid resulting in more rapid breathing is normal up to the point at which respiration is trebled or sometimes quadrupled, but that beyond this point a limit may be reached

Here again is clear evidence that the ventilation of the lungs can be accomplished in an entirely normal manner in spite of a greatly reduced vital capacity One lung is as efficient as two except when an increase at least threefold in contrast with normal ventilation is called for Means and Balboni have shown as the only difference between normal persons and persons with a collapsed lung that the latter when called on to increase their ventilation reach their limit a little sooner than the former Furthermore, the histories of patients bear out what might be expected in view of the foregoing, namely, that there will be no dyspnea in pneumothorax except after moderate exertion Thus does the liberal surplus of functional tissues prevent disease from hampering our activities or spoiling the pleasure of living

THE VENEREAL DISEASE PROBLEM—III

The English Venereal Disease Act

The order of July 12, 1916, of the Local Government Board puts in operation in England and Wales a system of state provisions for the diagnosis and treatment of venereal disease This order is practically an enactment into law of the recommendations of the Royal Commission on Venereal Diseases[1] Its detailed provisions so closely follow the recommendations of the commission that a consideration of them would be but a repetition of the analysis of the recommendations The essential purpose of the order is to furnish, as a sanitary measure, universal opportunity for prompt diagnosis and treatment of the venereal diseases The cost of this is to be met to the extent of 75 per cent from the imperial treasury, and only 25 per cent from local government funds Existing institutions are to be improved so that they can be utilized for this work, and new institutions are to be avoided as far as possible The venereal clinics are to be a part of general clinics, and every effort is to be made to relieve the scheme of the stigma of the venereal diseases

Facilities for diagnosis and treatment are to be furnished throughout England and Wales The institutions are to be accessible, evening clinics are to be provided, and embarrassing or deterrent restrictions are to be avoided as far as possible Treatment is to be given to all, regardless of their residence or means, but patients who are not objects of charity are to be referred, if possible, to private practitioners of their choice who, in conducting the treatment, are to receive the cooperation and advice of the medical officials in charge of the government clinics Arrangements are to be made for supplying salvarsan or its substitute to practitioners for the treatment of their patients The order shows evidence of appreciation of the importance of obtaining the cooperation of general practitioners, and of increasing the expert knowledge of venereal diseases among them The clinics are to be made centers of instruction for practitioners and students

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[1] Meltzer S J The Factors of Safety in Animal Structure and Animal Economy the Harvey Lectures for 1906 1907 Philadelphia J B Lippincott Company 1908 p 170

[2] Means J H and Balboni G M The Various Factors of Respiration in Persons with Pneumothorax Jour Exper Med 1916 24, 671

[1] The Venereal Disease Problem—I editorial The Journal A M A, Feb 3 1917 p 375, II Recommendations of the British Royal Commission on Venereal Diseases Feb 10 1917 p 463

Like the report of the royal commission the order of the Local Government Board avoids radical steps It is a measure which carefully takes into account the social conditions under which it must be operated The privacy of the individual is not to be invaded His secrets are to be protected He is simply to be given universal opportunity for treatment and every effort made to induce him to avail himself of it The weak point of the plan, which apparently is unavoidable at present, is the fact that there are no adequate provisions for compelling attendance for treatment until the patients have passed beyond the contagious stage This is a requirement which sooner or later must be embodied in state measures for the control of venereal diseases The only body in the community which may regard the measure as a radical step is the medical profession The measure is socialistic in its tendencies, but so are most measures for the public good, and it is fully justified on the ground of its general importance as a sanitary measure to the whole people However much it tries to protect the private practitioner, it will tend somewhat to the sacrifice of his income That is true of every measure for the control of infectious diseases As past experience shows, this will not deter the medical profession in the end from giving the scheme its whole-hearted support It will doubtless have opposition until it justifies its existence by its results

The order is in many respects epochal It marks the first effort of an English-speaking country or, indeed, of any large state, to deal with the venereal problem on a large scale by providing facilities for diagnosis and treatment There is a vast difference between the state of public mind of so short a time as ten years ago, when it was impossible to get the English government even to appoint a commission to consider the venereal disease problem, and the state of public opinion today, which causes the government to put into the form of law the recommendations of a commission on venereal diseases within four months after its report is issued

This act presents under political and social conditions much like those of the United States, an organized effort by a state to reduce the prevalence of the venereal diseases by providing universal opportunities for treatment As such its results will be of great interest to us It may be said at once that the effort is well worth the making Whether or not it solves satisfactorily the problem of the venereal diseases, it gives every prospect of being of sufficient benefit to justify its cost It is to be hoped that it will obtain the support both of the medical profession and of the public to the extent necessary for its success

UREA AND UREMIA

The observation that normally the kidneys can excrete very large quantities of urea without evidence of what has been regarded as renal "fatigue"[1] might well stimulate an inquiry as to whether urea itself can manifest toxic properties in the body Now that it is understood to be far more difficult to raise the concentration of urea locally in the circulating fluid and tissues than was assumed before the days of modern detailed blood and tissue analysis, the possible harmfulness of urea itself in the body has lost some of its former probability Accordingly, instead of grossly ascribing the apparent intoxication in so-called uremia to urea, a more critical attitude has arisen It must be admitted today that, in certain patients toxic symptoms occur when the urea and the total incoagulable nitrogen of the blood are either not increased or are increased to such a small extent that the symptoms observed can hardly be attributed either to the urea or to an increase in the total incoagulable nitrogen of the blood This appears to be particularly true of those cases of uremia in which generalized epileptiform convulsions dominate the symptomatology In such cases particularly, the search for a specific toxic substance seems indicated, and N B Foster[3] has reported the isolation of a toxic base from the blood of patients suffering from the convulsive form of uremia As extremely large doses of urea seem, on the evidence of recorded investigations,[4] to be required to produce definite toxic effects in experimental animals, skepticism regarding the real toxicity of urea has further arisen

For these reasons, as Hewlett and his collaborators remark,[2] the view has become generally accepted that the toxic effects of urea in any concentration encountered in patients are negligible, and that the symptoms of uremia are due to the action of the other and more poisonous substances They have therefore undertaken the somewhat heroic and certainly disagreeable task of determining once again the possible toxic effects of urea by experiments in which men served as subjects The investigations of the level of urea nitrogen in the blood in well defined cases of uremia of characteristic asthenic type show that urea concentration is usually not less than 100 mg per hundred c c of blood, and that marked clinical symptoms almost invariably attend concentrations of 200 mg As urea diffuses rapidly from the blood into the tissues, the quantities of urea taken by healthy persons by mouth must be very large in order to attain comparable concentrations in the blood, particularly in view of the rapid elimination from the body by way of the kidneys in such normal subjects

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[1] The Problem of Kidney Fatigue, editorial The Journal A M A, Feb 10 1917 p 464

[2] Hewlett A W Gilbert Q O and Wickett A D The Toxic Effects of Urea on Normal Individuals Arch Int Med, November 1916, p 637

[3] Foster N B The Isolation of a Toxic Substance from the Blood of Uremic Patients Tr Assn Am Phys 30 305, 1915

[4] Herter C A and Wakeman A J On Alterations in the Composition of the Blood Resulting from Double Nephrectomy Jour Exper Med, 4 117 1899 Marshall, E K, Jr, and Davis D M Urea Its Distribution in and Elimination from the Body Jour Biol Chem, 18 53 1914

It was found that by giving approximately 100 gm of urea by mouth over a short interval of time it is possible to increase the concentration of urea in the blood of normal persons to levels of from 160 to 245 mg per hundred c c The investigators point out that such concentrations are comparable with those encountered in the asthenic type of uremia, and that if the symptoms in the latter condition are in any way dependent on the concentration of urea in the blood and tissues symptoms should occur under the conditions of their experiment They found, indeed, that at such levels of blood urea definite symptoms occur These consist of headache, dizziness, apathy, drowsiness, bodily weakness and fatigue These cerebral and bodily symptoms were most pronounced at the time of maximum concentration of urea in the blood

It seems probable, therefore, in the words of the authors mentioned, that when as a result of nephritis the blood urea exceeds a concentration of 150 mg per hundred c c, the symptoms of bodily and mental asthenia may be explained in part as being due to the high concentration of urea in the body fluids and tissues This by no means excludes the possibility that other substances may play a role in producing the symptoms of this type of uremia, indeed, the fact that animals die only when extraordinary doses of urea are administered suggests that the fatal outcome of asthenic uremia in man may be due to other substances than urea

BRAZILIAN TRYPANOSOMIASIS—CHAGAS' DISEASE

When we speak of human trypanosomiasis, we think only of the sleeping disease of Africa In Brazil, however, there occurs an entirely different form of human trypanosome disease, which was described in 1909 by Carlos Chagas[1] It was in the course of an antimalarial campaign that certain observations were made which led to the discovery of this "new disease" Chagas noted that patients with fever, lymphatic and thyroid enlargements, and other symptoms, but without malarial organisms in the blood, lived in houses which harbored an insect which sucks human blood Studying this insect more closely, he found that it contained trypanosomes, and by letting it bite monkeys and other vertebrates he could produce a form of trypanosomiasis In the next place, he found that the blood of infants in the region contained the same trypanosome, and by injecting guinea-pigs with such blood he could produce trypanosomiasis in them As one of the chief characteristics of the trypanosome thus discovered is sporulation without fertilization—schizogenesis—it accordingly was named *Schizotrypanum cruzi* The insect in question is known as *Conorhinus megistus* The cone-nose beetle, another species of the same genus, is widely distributed in the United States, and in some localities it may infest beds and suck human blood

The human disease caused by the *Schizotrypanum cruzi* is endemic in certain regions of Brazil and occurs there in various forms In infants it usually is an acute disease with fever and other general symptoms, enlargement of lymph nodes, of the spleen, the liver and the thyroid, with a kind of myxedematous condition of the skin, and trypanosomes in the blood Death may occur with meningo-encephalitic phenomena After from twenty to thirty days of acute symptoms, the fever may fall, the parasites in the blood diminish in number, and the attack pass into a chronic phase In older persons the disease usually is chronic, progressive enlargement of the thyroid is a marked feature, and there may be cutaneous pigmentation, muscular weakness, irregular heart action, and even cerebral diplegia While symptoms of hypothyroidism may be quite distinct, typical cretinism with idiocy does not appear to occur in such marked form as in European regions of endemic goiter[2] The evolution of the trypanosome in the insect host has been traced quite fully,[3] and there seems to be no doubt that in nature the bite of the conorhinus and possibly other insects is the regular mode of transmission of the disease, which, however, may be congenital In man and other vertebrates the trypanosome first lives in the blood, whence it passes into the tissues, practically no organ being spared, the flagella and undulating membrane being lost, and a rounded form not unlike that of the leishmania assumed Intercellular and intracellular agglomerations of small rounded bodies are found which, when liberated, may assume the typical trypanosome form The skeletal muscles seem to be the seat of choice, then the adipose and connective tissue, the heart muscle, lymph nodes, etc The parasite may multiply in muscle tissue without causing a definite reaction In man the serous membranes, especially the peritoneum and pericardium, have been found greatly increased in thickness, and the lymph nodes, liver, spleen and heart enlarged There may be marked parasitic and cellular infiltration and other changes in the heart muscle and in the brain, especially in the acute form, may be multiple parasitic foci with invasion of the neurocytes The thyroid is enlarged regularly, with infiltrations and fibrous changes, and, as stated, the effects of disturbed thyroid function are seen in the clinical picture.

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[1] Nouvelle trypanosomiase humaine Mem do Inst Oswaldo Cruz 1909 **1,** 159 Nouvelle entite morbide de l homme ibid 1911 **3,** 219

[2] Novaes La trypanosomiase et son rapport avec le corps thyroide Rev med de la Suisse romande 1916 **36,** 592

[3] Rocha Lima Ueber das Verhalten des Erregers der brasilianischen Trypanosomiasis des Menschen in den Geweben Verhandl d deutsch path Gesellsch 1912, p 454 Zum Verhalten von Schizotrypanum Cruzi in Warmblutern und Arthropoden Arch f Schiffs- und Tropen Hyg 1914 **16,** Suppl 5 Brumpt Le trypanosoma cruzi evolue chez le Conorhinus megistus le Cimex lectularius le C Boneti et l Ornithodorus *moubata Bull Soc de path exot. 1912,* **5,** *360* Penetration du Schizo trypanum cruzi a travers la muqueuse oculaire saine ibid 1912 **5** *723* Naegler Experimentelle Studien uber die Passage von Schizotrypanum cruzi durch einheimische Tiere Zentralbl f Bakteriol *1913* orig **71,** 202

Whether morbid conditions associated with goiter, occurring in other parts of the world, are of the same or similar nature as this interesting Brazilian disease we have yet to learn.

PHILOLOGY AND PATHOLOGY

Sometimes the man of letters who, in criticizing the follies of others, ventures out of his field, presents a spectacle quite as amusing as any which he satirizes. In a recent book "On the Art of Writing," by Sir Arthur Quiller-Couch, occurs some animated comment on that useful, if hybrid, word "antibody." Sir Arthur's sprightly English is worth quoting:

> But I have another word for our men of science. It was inevitable, perhaps, that Latin—so long the universal language—should cease in time to be that in which scientific works were written. It was impossible, perhaps, to substitute, by consent, some equally neat and austere modern language, such as French. But when it became an accepted custom for each nation to use its own language in scientific treatises, it certainly was not foreseen that men of science would soon be making discoveries at a rate which left their skill in words outstripped; that having to invent their terms as they went along, yet being careless and contemptuous of a science in which they have no training, they would bombast out our dictionaries with monstrously invented words that not only would have made Quintilian stare and gasp, but would affront the decently literate of any age.
>
> After all and though we must sigh and acquiesce in the building of Babel, we have some right to examine the bricks. I was waiting, the other day, in a doctor's anteroom, and picked up one of those books—it was a work on pathology—so thoughtfully left lying in such places, to persuade us no doubt, to bear the ills we have rather than fly to others capable of being illustrated. I found myself engaged in following the antics of certain bacilli generically described as 'antibodies.' I do not accuse the author (who seemed to be a learned man) of having invented this abominable term; apparently it passed current among physiologists and he had accepted it for honest coin. I found it later on, in Webster's invaluable dictionary: etymology, 'body' (yours or mine) 'anti' up against it, compound, "antibody,' a noxious microbe.
>
> Now I do not doubt the creature thus named to be a poisonous little wretch. Those who know him may even agree that no word is too bad for him. But I am not thinking of *him*. I am thinking of *us*; and I say that for our own self-respect, whilst we retain any sense of intellectual pedigree, 'antibody" is no word to throw even at a bacillus. The man who eats peas with his knife can at least claim a historical throwback to the days when forks had but two prongs and the spoons had been removed with the soup. But "antibody" has no such respectable derivation. It is, in fact, a barbarism, and a mongrel at that. The man who uses it debases the currency of learning; and I suggest to you that it is one of the many functions of a great University to maintain the standard of that currency, to guard the *jus et norma loquendi*; to protect us from such hasty fellows or, rather, to suppeditate them in their haste.

We have no wish to dwell on the novel conception of antibody here advanced for the delectation of pathologists, and shall only express the hope that some day Sir Arthur will push his researches a little farther than Webster's dictionary. It is impossible to refrain, however, from drawing attention to the implication presented by another mongrel word which pops out with delightful spontaneity in the easy flow of Sir Arthur's gentle diatribe. When he chanced on the debased and barbaric word "antibody" he was waiting, he says, "in a doctor's anteroom." Meticulous pedants may be pardoned for wondering why a "sense of intellectual pedigree" is not offended by the use of the word "anteroom," but is revolted by "antibody."

In point of fact, the novelty in a language has always to fight its way into good society. Once its position is made good it is accepted by writers of high and low degree, often, indeed, with touching unconcern, by the very persons who would preserve the "purity" of a language against newcomers of exactly similar lineage. Whatever be the case with respect to precise scientific nomenclature, which some believe stands on a different footing, there is no doubt that our ordinary language grows through additions based on usage and not according to strict rules of procedure. The hybrid may claim a right to live equally with the mutant.

Current Comment

THE FUNCTION OF THE PROSTATE

The student of medicine who searches for physiologic wisdom in regard to the functions of the prostate will be sorely disappointed. Structurally the prostate consists of glandular, connective and nonstriated muscular tissues. The latter are said to be arranged both longitudinally and circularly in relation to the glandular tissue, and the organ also is supplied with numerous nerve cells. Among the conjectures made in reference to this anatomically complex and therefore presumably physiologically active outfit has been the hypothesis that as a muscular structure the prostate possesses the properties of a sphincter for the bladder. This has been denied on the basis of available experimental evidence by G. Walker.[1] He believed that the prostatic musculature has as its prime function the discharge of the secretion prepared in the glandular portions. Marshall's[2] more recent review of the behavior of the prostate indicates that its musculature contracts during ejaculation, thus forcing its own secretions into the urethra and aiding in propelling the seminal fluid along this portion of the urogenital tract. The nature of the contractions, whether tonic or rhythmic, has not been indicated. J. A. Waddell[3] has contributed some facts regarding the innervation of the prostate and its consequent response to certain drugs. In the latter respect it resembles the vas deferens[4] and the seminal vesicle[5] Like other portions of the internal generative tract which have been examined, the prostate possesses a motor parasympathetic as well as a motor sympathetic innervation The problem of the real function of the prostatic secretion itself is left unsolved It has been noted that the spermatozoa are practically motionless while in the seminiferous tubules of the testis, but become actively motile in the vas deferens, or when mixed with prostatic secretion This observation, however, is far from solving the questions at issue, especially since removal of the prostate and seminal vesicles in animals seems to prevent the possibility of fertilizing, although the testes remain apparently intact[6]

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[1] Beitrag zur Kenntnis der Anatomie und Physiologie der Prostata nebst Bemerkungen über die Vorgänge der Ejaculation, Arch. f. Anat., 1899, p. 313.

[2] The Physiology of Reproduction, 1910, p. 258.

[3] The Pharmacology of the Prostate, Jour. Pharmacol. and Exper. Therap., 1916, 9, 179.

SOME ASPECTS OF PLACENTAL FUNCTION

A century and a half have elapsed since John Hunter or his brother William Hunter—or, if it serve truth better, both of these—discovered the real nature of the connection between the mother and the fetus, thereby laying the foundation for our present knowledge of the structure of the placenta There is no direct channel of communication between fetal and maternal circulation The placenta represents the fetal organ for respiration, nutrition and excretion As to the nature of the exchanges which go on between the two related organisms and the mechanisms involved in the transference, practically nothing is known The structure of the parts concerned favors an interchange of products between the mother and the fetus An extensive vascular bed, chiefly secured by division of the large fetal vessels into a myriad of smaller ones, is further enlarged by the arrangement of the smallest of these, they form loops which hang toward the maternal blood The vascular loops surrounded by connective tissue, which, in turn, is covered by epithelium, constitute the chorionic villi These tiny, finger-like projections are immersed in lakes of maternal blood They act both as receptors of nutriment for the fetus and as its excretory agents Beyond these facts, we are told by Slemons and Morriss, from whom the foregoing description is borrowed, knowledge of the physiology of the villi is fragmentary How substances pass from one circulation to the other through the layers of the chorionic connective tissue and epithelium—which, together with the wall of the fetal vessels, constitute the placental partition—is a question which is answered thus far only hypothetically It has been assumed that the placenta takes some undefined sort of active participation in the preparation of the fetal nutriment In this "vitalistic" conception, placental enzymes have recently been made to play a part, as is so often the case when physiologic obscurity necessitates so vague a hypothesis The supporters of the "mechanistic" theory of placental function, on the other hand, believe that the placenta behaves essentially as a permeable membrane Slemons and Morriss have studied the comparative chemical composition of fetal and maternal blood As nearly as possible the specimens were obtained simultaneously, just after birth occurred In a considerable number of normal obstetric patients the average rest-nitrogen was found to be 25 mg per hundred c c in both maternal and fetal bloods, the urea-nitrogen was likewise essentially the same in the two circulating fluids This identity of content, particularly in the case of urea, indicates conclusively that this substance passes through the placenta by diffusion Complications accompanied by an increase of urea in the maternal blood—toxemias of pregnancy, syphilis, decompensated heart lesions, and others—were also attended with a corresponding increase in the fetal blood-urea This novel finding in pathologic cases clearly confirms the diffusibility of urea through the placenta Whether or not there is an equally ready transfer of all the other soluble blood constituents, commonly included under the term rest-nitrogen of the blood, needs to be ascertained for each of the individual substances concerned A ready equalization on each side of the placental partition seems more than probable, however, in the light of these new blood analyses

THE FATE OF TRYPSIN IN THE STOMACH

The proteolytic enzyme of the pancreatic secretion has long been regarded as exceedingly sensitive to acids In the presence of even low concentrations of acids, the tryptic power seems to be permanently diminished or completely lost Many believe that gastric juice is peculiarly destructive to the proteolytic pancreatic ferment by virtue of the action of pepsin on the enzyme There is a practical aspect to this On the one hand it concerns the possible survival of tryptic power when intestinal contents are regurgitated into the stomach, as occasionally happens On the other hand, the futility of administering trypsin preparations by way of the mouth must be gaged in part by the fate of the enzyme in its contact with the gastric contents Judging by experiments which Long and Hull[1] have conducted in vitro, it appears that the common proteolytic enzyme of the pancreas, isolated as trypsin, is capable of withstanding a rather long digestion in presence of hydrochloric acid and pepsin, provided sufficient protein of some form is present to combine with all or part of the acid and so bring the hydrogen-ion concentration down to a certain level They[2] have now corroborated these findings by a study of what happens in the living stomach of animals under conditions which might well obtain in the human stomach at times when trypsin is ingested Long and Hull report new experiments in which the secretion of pepsin and acid was abundant, and from this point of view the conditions for the persistence of trypsin were not favorable Yet, in the larger number of experiments, the latter ferment was not destroyed by the other combination when sufficient protein was present to bring the concentration of the free acid down to a certain value Trypsin seemed to be destroyed or greatly weakened only when the acid was in excess with pepsin From these observations it appears, further, that possibly some tryptic digestion may occur even within the stomach when the free acid is low from protein combinations, and the destruction or weakening of the trypsin is a function, probably, of the hydrogen-ion concentration The trypsins employed in these experiments were relatively strong products It is not to be concluded that these results even remotely suggest that the administration of a few grains of the various commercial products claimed to contain trypsin or pancreatin would have any therapeutic significance In the dosages employed, such preparations are, as has been shown elsewhere, too weak to have any appreciable action

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[4] Waddell J A The Pharmacology of the Vas Deferens Jour Pharmacol and Exper Therap 1916 **8** 551

[5] Waddell J A The Pharmacology of the Seminal Vesicles Jour Pharmacol and Exper Therap 1916 **9**, 113

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[2] Long, J H and Hull, Mary On the Assumed Destruction of Trypsin by Pepsin and Acid, II Observations on Animals, Jour Am Chem Soc 1917 **39**, 162

FOOD SUPPLY AND GROWTH OF POPULATION

The bodily welfare of man is dependent in large degree on a satisfactory solution of the problems of food, clothing and shelter With the rapid growth of population the need of suitable nutrients increases at a corresponding rate Economic foresight accordingly leads the critical observer of the increasing number of persons who demand sustenance to inquire whether the sources of supply continue to be adequate and whether they are likely to keep pace with the demands of the expanding nation in the years to come Prophecies of impending crises have been made from time to time by serious minded scientists and economists One writer, basing his view on the contention that wheat is the most sustaining food grain of the Caucasian race, has ventured the belief that if prophecies based on population statistics are trustworthy, the crisis will be on us before the end of the century It must be remembered, however, that the acreage devoted to agriculture is still expanding and that conservation processes as well as other factors, such as improved transportation facilities and changing customs in diet, are helping to improve the outlook New food possibilities are frequently being brought within the range of present needs In 1900 the population of the United States was 76 millions, now it is estimated at over 100 millions — a growth of 33 per cent The latest report of the secretary of agriculture gives some indication of the extent to which the supply of a variety of food products has kept pace with the growing demand occasioned by this increment of population The total production of most items on the food supply lists, such as poultry, fish, cereals, potatoes, citrus fruits and orchard fruits, during the sixteen years in which 26 millions of persons were added to the numbers to be fed, shows no diminution per capita The sugar production is the only one showing a significant increase Meat and dairy products constitute 37 per cent of the average diet, fish 2 per cent, cereals 31 per cent, Irish and sweet potatoes 13 per cent, and other vegetables 8 per cent It is notable that, notwithstanding the rapid increase in population, the production per capita of the commodities indicated, with the exception of meats and dairy products, has remained approximately the same or has increased

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest such as relate to society activities, new hospitals education, public health etc)

CALIFORNIA

Tuberculosis Foes Meet—A joint conference of the San Francisco and California Associations for the Study and Prevention of Tuberculosis was held at the St Francis' Hotel San Francisco January 25 The following physicians were reelected members of the board of directors Drs Mariana Bertola, Walter B Coffey Attilio H Giannini Charles G Levison Harry M Sherman and William C Voorsanger, all of San Francisco

Intern Examination—The Civil Service Commission of the County of Los Angeles announces an open competitive examination for intern in the Los Angeles County Hospital, to be held March 2, at various places throughout the country Applicants must be at least 21 years of age, citizens of the United States and must make application on blank forms, which will be sent on request to the Los Angeles County Civil Service Commission There are eighteen positions to be filled in July, 1917 and ten in January 1918 The service is for eighteen months and the compensation includes full maintenance and uniform All successful candidates must be graduates of medical institutions of recognized standing

ILLINOIS

Tuberculosis Hospital for Springfield—St John's Hospital, Springfield will build a tuberculosis sanatorium to cost $500 000 It will be 6 miles east of Springfield on a site of 153 acres Work will be begun in March

Smallpox in Mining Camps—Over 100 cases of smallpox have been reported in mining camps at Tovy, Bulpitt, Kincaid and Jerseyville The situation is in charge of Dr Edwin B Godfrey state board of health epidemiologist

Library for Society—Sangamon County Medical Society has established a medical library in the lecture room of St John s Hospital, Springfield A number of medical books and magazines have been donated, and *it is hoped to open* the library in March

Chicago

Personal—Dr Jacob J Minke returned to Chicago, February 8, after eight months' service in a military hospital at Pardubitz, near Prague Bohemia

Dr Billings Convalescent—Dr Frank Billings, who has been ill with pneumonia at his home, has safely passed the crisis and is steadily improving

Women's Clinics—The Women's Medical Club of Chicago held clinics for women physicians of Illinois, February 12 to 16 February 14 a banquet was held at the college club rooms Clinics were held at various hospitals during the week

Scarlet Fever at University—February 8 two additional cases of scarlet fever were reported in the Delta Upsilon fraternity house at the University of Chicago Thirteen members of the fraternity were placed under quarantine and part of Hitchcock Hall was also quarantined

New Red Cross Unit—A new Red Cross unit was formed at St Luke s Hospital February 10, with Mrs Heaton Owsley as chairman The organization will be divided into two classes under the direction of Dr Lewis L McArthur, and will meet at St Luke s and Michael Reese hospitals

INDIANA

Fire at Hospital—Fire at West Baden, February 11, destroyed the hospital at the West Baden Hotel, with a loss of about $25,000 No lives *were lost*

County Hospital Opened—The Bartholomew County Hospital Columbus, built at a cost of $100,000, was opened, February 6 This is the first hospital to be built in the state under the law giving counties the right to erect public county hospitals on petition of the requisite number of tax payers

Personal—Dr J Rilus Eastman, Indianapolis, who has been chief surgeon in charge of a hospital in Vienna for several months will return about February 20 Dr Henry O Bruggemann, Fort Wayne who had expected to sail for Rotterdam, February 5, to take Dr Eastman's place, has given up the trip on account of the severance of diplomatic relations between the United States and Germany——Dr Robert C Johnson, Frankfort, has been appointed first lieutenant, M C, Ind N G, and assigned to Ambulance Company No 1, succeeding Dr Donald C McClelland, Lafayette resigned——Drs Julius E Hiatt, Edson K Westhafer and George H Smith, Newcastle, suffered a loss of their offices furniture and fixtures by fire, February 6——At the annual meeting of the Indiana Society for the Prevention of Tuberculosis held in South Bend, Dr Alfred Henry Indianapolis, was elected president and Dr Roscoe L Sensenich, South Bend, vice president

MARYLAND

Hospitals Offered to Government—The Eudowood Sanitarium at Towson and the General and Marine Hospital at Crisfield have been offered to the government in case of war

Personal—Dr Ernest H Gaither and Dr Dwight H Mohr Baltimore, have been appointed on the staff of the Franklin Square Hospital——Dr Howard A Kelly, Baltimore, who has been ill with pneumonia in Florida is recovering and will return to Baltimore within a few weeks

Infant Mortality—The Baby Welfare Association has issued a report showing the relative standing of the ten largest cities in the country with regard to the infant mortality rate The ten cities and the order in which they stand are St Louis New York Philadelphia Boston Cleveland, Pittsburgh, Chicago, Detroit, Buffalo and Baltimore the rate ranging per thousand from eighty-nine in St Louis to 118 in Baltimore While Baltimore stands tenth in actual infant mortality rate the city has made the largest reduction in the infantile death rate of any of the ten cities

NEW JERSEY

Site for Hospital Offered—Edward Seifert has offered 28 acres on the New Homestead Road to the Rockland County Tuberculosis Hospital

Smallpox at Railway Camp—Following a case of smallpox in a camp of the Erie Railway at Jersey City, 300 workmen, mostly Mexicans and negroes, were vaccinated, January 28

War on Mosquitoes—The New Jersey Mosquito Extermination Association has asked the legislature for $100 000 for the current year to pay for work done by the municipal authorities and salt marsh counties to rid the state of mosquitoes According to the New Jersey state entomologist, nearly 200 000 acres of marsh in Ocean, Burlington, Atlantic and Cape May counties remain to be drained

Personal—Dr Jacob C Price, director of the state department of health gave a luncheon in Trenton, January 11, to the chiefs of various departments, in honor of Dr Millard Knowlton, who has been in charge of the bureau of education and publicity since its beginning, and who has resigned to take up the study of public health at Harvard University——Capt Frank Y Neer Paterson, assigned to Fifth Infantry, has been promoted to major, succeeding Major Joseph V Bergin resigned——Lieutenant Craig, Ridgewood, has been promoted to captain

NEW YORK

New Laboratory Site—The state department of health has purchased a site for a new laboratory at Albany, at a cost of $40 000

State Society to Come to Utica—The Medical Society of the State of New York will meet at Utica, April 23 to 26 Headquarters will be at the state armory

Ambulance Company Officers Entertained—The officers of the Second Ambulance Company, which returned from the border a short time ago were entertained at dinner by the officers of the Rochester Base Hospital at the rooms of the Rochester Physicians' Association Dr John M Swan presided

Hospital Wanted for Westchester—Three hundred thousand dollars has been appropriated for a hospital at East View The present county hospital has accommodation for 110 patients, and during the last year there were at least 185 patients who needed hospital treatment The new hospital will cost $1,200,000, and will accommodate 600 patients

Reduction of Infant Mortality—In spite of a recent epidemic of infantile paralysis, the infant mortality rate for the state, outside of New York City, for 1916 was ninety-four per thousand, a reduction of six points from 1915 and of twenty points from 1911 There was also an actual reduction of 481 deaths of infants during the year The death rates from scarlet fever, typhoid fever, diphtheria and tuberculosis were the lowest in the history of the state

Personal—Dr Raymond Sanderson has resigned as director of the Ulster County Laboratory, Kingston, to accept the position of pathologist at Vassar Hospital, Poughkeepsie——Dr Franklin N Barrows has been appointed assistant health commissioner of Buffalo——Dr James Taylor Harrington has been appointed commissioner of health of Poughkeepsie, succeeding Dr Lewis H Marks, resigned——Dr John H Pryor has been elected president of the Buffalo Association for the Relief and Control of Tuberculosis

Compensation Cost—The State Industrial Commission states that the aggregate amount of compensation paid in New York state under the workmen's compensation law during 1916 was $11,500,000, which includes $5,000 000 for deaths, nearly $4 500,000 for permanent injuries and nearly $2,000,000 for temporary injuries This does not represent the total economic loss from accident and it does not include the cost of medical benefits the administration of the compensation law or the wages and medical loss of injured employees not covered by the compensation This would probably make the direct and indirect loss of the year amount to nearly $30 000 000

New York City

Harvey Society Lecture—The next of the series of Harvey Society Lectures will be given at the New York Academy of Medicine February 24 Prof John R Murlin of Cornell University will lecture on The Metabolism of Mother and Offspring Before and After Parturition '

Three Ambulances for City—The Militia of Mercy has presented to the city three ambulances, used since last September for transporting infantile paralysis victims from their homes to hospitals for after-treatment These ambulances cost $4 500 each, and have transported 5,000 patients since last September

New Tuberculosis Procedure—At a conference with Chief Justice McAdoo on the control of unruly consumptives Judge McAdoo suggests that unruly consumptives be brought before him for possible commitment to the custody of the department of corrections for disorderly conduct Hereafter this method will be adopted

Nasal Diphtheria Prevalent—An unusual number of cases of nasal diphtheria have been brought to the attention of the department of health by the physicians of Willard Parker Hospital The disease runs a mild course and resembles an ordinary rhinitis Physicians are urged to be on the lookout and to send cultures of rhinitis in infants to the department laboratory for diagnosis

Conference on Hospital Social Service—The seventeenth meeting of the New York Conference on Hospital Social Service was held at the New York Academy of Medicine February 7 The topic of the evening was "Children" Papers were presented by Dr Henry D Chapin on Preventive Care of Children' , by Dr Charles R Conklin on "Preventive Work for Children,' and by Dr Frederick L Brush on "Home Convalescence '

Increased Death Rate—During the week ending February 3, there were 200 deaths more than in the corresponding week of 1916 Of the 1 754 persons who died in the city, 239 deaths were from lobar pneumonia 121 from bronchial pneumonia forty from influenza and twenty-one from bronchitis, a total of 421 deaths from respiratory diseases The death rate for the week was 15 95 per thousand, which compares unfavorably with 14 41, the rate for the corresponding week of 1916

Examination for Oculist—The Municipal Civil Service Commission will receive at the Municipal Building up to February 23, applications for the position of oculist, grade two Applicants must be between 21 and 45 years of age, and must present a license to practice medicine in the state of New York, and evidence of at least one year of internship or three years' service in the outpatient department of a hospital giving special training in diseases of the eye Duties are supervision and responsibility for the diagnosis and treatment of diseases, physical abnormalities and other conditions of the eyes in the City Hospital Clinic or other institutions Compensation varies from $1,030 to $1 380 a year Oculists are usually required to work twenty-one hours a week in the department of health

OKLAHOMA

Personal—Dr Benjamin S Gardner, Marietta, fell from a porch at his home recently, dislocating his hip——Dr Joseph W Bone, Sapulpa, who has been ill for several months, is reported convalescent

OREGON

Date Fixed for State Meeting—The next annual meeting of the Oregon State Medical Association will be held in Portland, June 28 to 30

State Board Asks Larger Staff—The state board of health in its report asks for a school nurse for the inspection of schoolchildren and the supervision of school sanitation, an epidemiologist as deputy health officer, and a field representative for public educational work

Personal—Dr Harry F McCay, Portland, has been appointed county physician of Multnomah County, to succeed Dr E P Geary——Dr Spiro Sargentich, Portland was the guest at a dinner given by fifty physicians of the city recently, at which he detailed some of his experiences as a surgeon in the Serbian army

PENNSYLVANIA

To Disinfect School Pencils—A bill introduced into the senate February 7, provides for the daily disinfection of all pencils and penholders used by the school pupils

Typhoid Fever—Dr Howard Hull of the state department of health, Harrisburg, is investigating the typhoid epidemic in Rush Township, Center County, where he found eighty-eight cases instead of the thirty-five originally reported by the health board It is planned to open a temporary hospital at Osceola Mills, in the infected territory

Economic Topics Discussed—The Lehigh Valley Medical Association met in Palmerton, February 1 Dr John W Luther, chief surgeon of the New Jersey Zinc Company, Palmerton, spoke on "The Physical Examination of Employees", Major Robert U Patterson, M C, U S Army, director of the Bureau Service of the American Red Cross, on "The Relation of the Red Cross to Civilian Physicians and the Military Service," and Dr Francis D Patterson, Harrisburg, chief of the Division of Industrial Hygiene and Engineering of the Department of Labor and Industry, on "The Relation of the Physician to Some of the Problems of Modern Industry"

Personal—Dr Henry A Gorman, first assistant physician at Mont Alto Sanatorium for five years, was elected senior resident physician of the Harrisburg Hospital January 29——The residence and office of Dr Willet E Hughes, Ashley, were damaged by fire to the extent of $4,500, January 30——Dr William C White, medical director of the Tuberculosis League Hospital, Pittsburgh, has accepted an invitation to go to France and assist in restoring the health of French soldiers who have returned from the front suffering from pulmonary tuberculosis——Dr Robert M Patterson, Beaver Falls is recovering from an operation for appendicitis——Dr Robert H Jeffrey, Uledi, has been appointed director of the safety department of the W J Rainey Company, Uniontown to succeed Dr Samuel A Baltz, resigned

Philadelphia

Memorial to White—In memory of the late Dr William White, his widow has presented a motor ambulance to the American Ambulance corps on the western war front

New Field Hospital Established—Dr Eugene Swayne at a meeting held January 18 organized a new field hospital company to be known as Field Hospital Company No 3, N G Pa

New Officers—The newly elected officers of the Philadelphia Pediatric Society are president, Dr John F Sinclair, vice president, Dr William Duffield Robinson, secretary, Dr A Graeme Mitchell and treasurer, Dr Charles V Dorwarth——Section of Ophthalmology of the College of Physicians Dr William T Shoemaker, chairman, and Dr J Milton Griscom, clerk

Alumni Day—Alumni Day will be celebrated at the University of Pennsylvania, February 21, with a luncheon in Houston Hall, an alumni meeting at which information about the medical merger will be given, and a dinner by the provost to visiting alumni in the evening February 22, the exercises of University Day will be held at the Academy of Music The address will be delivered by President Jacob Gould Shurman of Cornell University

Personal—Dr L Webster Fox has been reelected president of the Pennsylvania Home Teaching Society and Free Circulating Library for the Blind——Dr Francis Abbott has returned to the war zone in France——Dr Hugh B O'Donnell was injured, January 19, in a collision between his automobile and a trolley car——Dr Horace Phillips has been appointed visiting physician in the psychopathic ward of the Philadelphia Hospital succeeding Dr Albert C Buckley, resigned——Dr David N Husik has been appointed laryngologist and otologist to the Philadelphia General Hospital succeeding Dr Charles P Grayson, resigned

CANADA

Personals—Col Herbert A Bruce, Toronto, was tendered a complimentary banquet by many medical friends in Toronto, February 14——Capt Robert J Wilson, Toronto, is home from the Ontario Military Hospital England having come out as medical officer with a party of wounded soldiers——Col John Taylor Fotheringham, Toronto, has been made a C M G

University News—At the McGill annual class dinner it was announced that 1 800 graduates of McGill were serving abroad, that 132 had been killed and 163 wounded One of the fellows of the medical faculty has received the V C four the D S O one the C M G, one the Order of the Bath and seven have been mentioned in dispatches The forty three graduates of the class of 1917 have volunteered in a body

Insanity in Quebec Increasing—The annual report of the Verdun Hospital for the Insane shows that at the close of 1916 there were 766 patients as inmates, an increase of forty over 1915 The 1916 figures comprise 382 men and 384 women Twenty returned soldiers were admitted during the year, of whom thirteen were being treated at the close of the year The total number of patients undergoing treatment throughout the year was 962, as against 911 in 1915 Dr Burgess, the superintendent stated that the principal causes of insanity were mental anxiety due to family afflictions business worries disappointments, etc Drink and drugs came a poor second while senility heredity and vice filled up the rest of the list During 1916 131 patients had been discharged and there were sixty-one deaths, general paresis leading as the cause of death

GENERAL

Sioux Valley Medical Association Meeting—The Sioux Valley Medical Association will hold its next annual meeting at Sioux Falls S D, in June

Red Cross Base Hospital at Milwaukee—The Milwaukee Chapter of the American Red Cross has raised $30 000 for a base hospital of which Dr John L Yates will be in charge

Indian Service News—Dr Joseph A Murphy, medical supervisor, has resigned——Dr Robert W Bell of the San Juan Reservation, N M, has been placed on the active list, M R C, U S Army

New Journal of Endocrinology—The first issue of a quarterly to be known as *Endocrinology The Bulletin of the Association for the Study of Internal Secretions* has just appeared It is edited and published by the secretary at Glendale, Calif

Railway Surgeons to Meet—The tenth annual meeting of the Association of Surgeons of the Illinois Central and the Yazoo and Mississippi Valley Railroad companies will be held in New Orleans, March 30 and 31, with headquarters at the Hotel Grunewald

McIntire Prize—The American Academy of Medicine announces two prizes from the McIntyre fund, one to be awarded in 1918 and the other in 1921 The subject for 1918 is "The Principles Governing Physicians' Compensation in the Various Forms of Social Insurance" The committee to award this prize consists of Drs John L Heffron, Syracuse N Y, Reuben Peterson Ann Arbor, Mich and John Staige Davis Richmond, Va The subject for 1921 is "What Effect Has Child Labor on the Growth of the Body?" The committee consists of Drs Thomas S Arbuthnot, Pittsburgh, Winfield Scott Hall Chicago, and James C Wilson, Philadelphia The prize for 1918 will amount to $100, and in 1921 to $250 Detailed terms governing the competition may be secured from the secretary of the academy

Bequests and Donations—The following bequests and donations have recently been announced

Presbyterian Hospital, Philadelphia, $5 000, to maintain a bed for the members of the Harriet Holland Memorial Church Sunday School by the will of Ella B Morris

The John S Billings Memorial Fund, for the purchasing of books for the New York Public Library and the Anna Palmer Draper Fund $450 000 Polyclinic Hospital New York, $47 767, Children s Aid Society New York Association for Improving the Condition of the Poor New York Skin and Cancer Hospital, and Laboratory of Surgical Research of the New York University each $23,883, by the will of Mrs Mary Palmer Draper

New York Association for Improving the Condition of the Poor and New York Association for the Blind, each $10 000 by the will of Mrs F T Lord

Postgraduate Hospital New York $2 000 the proceeds of a sale and entertainment for the benefit of the Babies Ward

FOREIGN

Psychopathic Prize—The late Dr Valentin Magnan, formerly president of the Paris Academy of Medicine, has bequeathed to that organization the sum of $5,000 the income of which is to be awarded triennially to the author of the best work on a psychopathic subject

Swiss Neurologic Journal—The Swiss Neurologic Association at its recent annual meeting voted to found with the Alienist Association a journal to be the official organ of the two societies and publish their transactions and original articles

From Cuba—Dr R Menocal, professor of clinical surgery and skin diseases at the University of Havana, has been appointed secretary of the national public health service, better known as the "Sanidad y Beneficiencia" The profession in Cuba tendered him a banquet on the occasion He takes the place left vacant by the death of Dr Enrique Nuñez Prof F Dominguez Roldan was appointed dean of the medical faculty in place of Menocal

Deaths in the Profession Abroad—E Cervera, one of the leading surgeons in Spain director of the Instituto Rubio since the death of Rubio, aged 61 He is said to have been the model of a good physician who was at the same time a most skilful operator He founded a department at the institute for research on cancer and published a number of works on abdominal and nerve surgery, and on the gastro-duodeno-hepatic associations of pancreatic disease

Cooperation with International Health Board—The president of the state of Rio de Janeiro according to W C Downs commercial attache at Rio (*Commerce Reports*, February 8), has been given authority to facilitate the mission of the International Health Board by decreeing sanitary measures, taking the necessary steps to obtain the aid of municipal councils and meeting necessary expenses by opening the required credit A decree covering these points will be submitted to the legislative assembly at its first regular meeting for definite approval

Presentation of Bloch's Portrait—An oil portrait of Prof O T Bloch was hung recently with appropriate ceremonies in the hall of the Surgical Academy at Copenhagen in preparation for his approaching seventieth birthday The surplus left from the subscriptions for the portrait was presented to him and he turned it over to the building fund of the medical society He was for a long time on the editorial staff of the *Hospitalstidende* and has published numerous works in this and in Scandinavian British and French surgical journals He has also published several books, including one on the history of treatment of wounds from the earliest to modern times

Association of Medical School Inspectors in the Netherlands—Replies to a questionnaire sent out to the members of the Netherlands Vereeniging van Schoolartsen show that the advice of medical inspectors is seldom sought when a new schoolhouse is contemplated, and still more rarely is it heeded In three new schoolbuildings the schoolrooms are on the north and the locker rooms take up the south exposure In others the playgrounds are to the north of the building At the recent annual meeting a number of speakers emphasized the importance of open-air schools in the fight against tuberculosis They complete the cure for children who have taken a course of treatment in a sanatorium The ferry boat open-air schools of New York were commended The fact that some other member of the family has or has had tuberculosis should entitle a child to admission into the open-air school, but 'open" and surgical tuberculous patients belong in institutions The association, in connection with the association of language teachers, voted to found a special journal

Inconsistencies of Recent French Legislation on Taxation of Pharmaceuticals—G Linossier comments in the *Paris medical* on a recent law imposing a tax on pharmaceutic specialties A tax is imposed on pharmaceutic specialties of which the formula is not published and which an older law prohibited from being sold Officials are in a quandary, as infractions of the old law have been overlooked to an extent impossible under the new law Pharmacy inspectors find it difficult to forbid the sale of remedies on which the state has already collected a revenue tax The restriction of the tax to pharmaceuticals with secret formulas hits French manufacturers in particular as most French pharmaceuticals are merely combinations of known drugs put up in an attractive way under a fancy name The owners do not like to publish the formulas, as any one could then make them up German pharmaceuticals are mostly new synthetics, the composition of which is known and which are exempt under the new law Linossier admits that the legislators had no intention of favoring German pharmaceuticals but blundered merely from ignorance, and asks whether or not it is the proper thing to entrust such matters to incompetents

Foreign Exchanges in 1916—The first week in February brought an unusually large batch of European medical journals The mail included the December numbers making the volumes for 1916 complete for those received during the year With the exception of Germany until last week weekly exchanges have arrived as regularly as in the years before the war They have come unfailingly from England France, Holland, Italy Russia the Scandinavian countries Spain and Switzerland The monthlies in some of the countries have taken two years to complete their 1915 volumes, but they are now complete and are starting on their 1917 volumes The Swiss *Correspondenz-Blatt* announced that it had skipped the November and December issues on account of a labor strike The issue of the Netherlands weekly for July 29 failed to arrive, and also No 2 of the big quarterly issued by the Swedish Medical Association With these exceptions the file is complete for twelve exchanges from France, with three others not quite complete yet, one complete each from the Netherlands, Finland, Russia and Spain, three from Italy, three from Japan, seven from the Scandinavian countries and two from Switzerland A few other journals from various countries show several gaps Besides the above, the four journals from the leading South American states have arrived with a regularity unknown until 1915 Only about half of the issues of the five big German weeklies were received during 1916 They have been published abstracts from the missing numbers have appeared occasionally in the Holland and Scandinavian journals The *Zentralblatts* stopped coming in November 1915, and only one lone *Zentralblatt* arrived in 1916 The above includes merely the journals in foreign languages that it has been the custom to review regularly in the current literature department

WAR NOTES

Praise for Wisconsin Surgeon—A surgical unit sent to Austria last summer in charge of Dr John R McDill, Milwaukee, has received high praise for efficiency from Prof von Eiselsberg, in charge of Austrian military hospitals

American Surgeons Abroad—Drs Carl Edwin Allison, Somerville Mass James V Ricci, Providence, R I, Jerome F Potts, Washington D C, William M Findley, New York, Frederick A Simmons Wakefield, Mass, J Franklin Harvey, Boston, Charles Curtis Allen, Topeka, Kan, Leo Thomas Kewer, Waverley Mass, Charles F Gormly, Providence R I, William H Mackay, Worcester, Mass, Audley O Sanders, Boston Stanley Bridges Worcester, Mass, and Guy Watt, Worcester sailed from New York, February 10, for service in the British hospitals on the western front

PARIS LETTER

Paris, Jan 18 1917

The War

IMPROVEMENT IN THE ORGANIZATION OF THE MILITARY SURGICAL SERVICE

The undersecretary of state of the military health service has adopted various noteworthy measures of organizing the surgical service of the army For instance, a consulting surgeon has been appointed for each army corps Surgical squads have been formed to assist at the base hospitals whenever there has been a great deal of work Each of these squads consists of a surgeon and his usual aids assistant surgeon, anesthetist and trained assistants This combination accomplishes results far superior to those obtained heretofore by isolated surgeons who had to work with untrained help picked at random

INTER-ALLY CONFERENCE FOR THE STUDY OF PROFESSIONAL REEDUCATION

As stated in a previous letter, this conference will be held in Paris March 6 at the initiative of the Belgian government supported by the French government The program of this conference will be as follows First section—Physical reeducation (*a*) physiotherapy and medical gymnastics, (*b*) prosthetic apparatus, (*c*) professional work Second Section—Professional reeducation (*a*) aspect of professional life, (*b*) When shall professional reeducation begin? Of what shall it consist? (1) Intellectual and (2) manual departments, (*c*) mechanical aids working arms, orthopedic appliances and special equipment for the use of invalids, (*d*) organization of schools large general schools, small special schools methods of teaching, utilization existing institutions and facilities Third Section—The placing and adaptation of invalids (*a*) in agriculture and the minor industries and business, (*b*) in industry war industries and others, (*c*) relation of the able bodied and invalids in shops as to salaries and division of work, etc Fourth Section—Economical and social interests of invalids (*a*) obligatory reeducation, (*b*) reeducation after the war of men who were unable to take advantage of this service during the hostilities, (*c*) absolute invalids, (*d*) permanent protection of the mutilated and crippled, mutual societies cooperative societies official organizations and private institutions Fifth Section—The blind the deaf, etc (*a*) their reeducation, (*b*) their placing, (*c*) their economic and social interests

VALUE OF NERVE SUTURE IN WAR SURGERY

Drs Chiray and E Roger reported to the Societe medicale des hopitaux de Paris on cases of nerve suture They insist that in order to draw valuable conclusions it is necessary to classify the observations carefully and to base them only on cases of nerve suture after complete section Chiray and Roger found that nerve suture is followed by negative results in 29 per cent of the cases, sensory response to electric stimulation, without motor response, occurs in 48 per cent and motor and sensory restoration occurs in 23 per cent Return of sensation always precedes return of motion Motion returns in the radial nerve after five months, in the ulnar after eight months, in the median after seven months, in the sciatic and popliteal after from two to five months The radial sciatic and external popliteal nerves seem to give the best results Experience has shown that early operation is the most effective, nevertheless, operations performed at the fourth or the sixth month are often successful Chiray and Roger emphasize the importance of total resection of all fibrous tissue coaptation of the severed ends without tension and without bruising The particular method of operation does not seem to have any decisive bearing on the result End-to end suture and nerve grafting give equally good results Chiray and Roger are convinced of the importance of postoperative treatment particularly the use of a prosthesis and of the local ionization of potassium iodid Dr Albert Frouin, who has done considerable research work on the suture of nerves after complete section reported to the Societe de biologie the results he obtained He makes an immediate suture using silk floss instead of catgut for suture material and the finest needles obtainable so that he can suture the perineurium without injuring the axis cylinders Seventeen animals operated on in this manner walked very well on the soles of their feet after fifteen days

CULTURE OF MEDICINAL PLANTS

M de Poumeyrol recently presented to the general syndicate of the French drug trade a report on the harvest and culture of medicinal plants in France The war has caused a considerable decrease in importation of these products which come almost exclusively from other countries and it is necessary to take steps to remedy this *state of affairs* Russia has created a special section in her agricultural department, and has distributed to farmers seeds amounting in value to 9 000,000 rubles She has also appropriated premiums and arranged for loans to those who will cultivate these plants M de Poumeyrol s report requests that tests be made in agricultural and rural schools, that a manual be placed in the hands of those who would like to engage in this culture, that the necessary advice be given to those who want to cultivate medicinal plants now growing in a wild state, and that measures be taken by transportation companies to modify the tariff on these articles, which is already too high

POISONING BY EXHAUST GASES IN AUTOMOBILE AMBULANCES

Dr Tanon called the attention of the Reunion medicochirurgicale de la V e Armee to the danger of heating auto ambulances from the exhaust pipe when the motor is not working right and the joints are not sealed hermetically Fumes are discharged into the interior of the car These fumes are noxious In some cases they have caused fatal results Although the quantity of carbon monoxid contained in the gases is small the lesions observed at the necropsy are those of carbon monoxid poisoning The products of incomplete combustion do not cause death in the animal They do not destroy the red blood cells nor do they reduce the hemoglobin Blood impregnated with carbon monoxid is capable of reabsorbing oxygen but greater activity of the respiratory apparatus and the respiratory center is required The first symptoms experienced appear to be the result of a toxic action on the respiratory center Physicians at base hospitals should instruct the chauffeurs as to the dangers of exhaust heating systems Every conveyance heated in this manner should be inspected regularly and often, and repaired as soon as even a trace of gas is detected

LONDON LETTER

London, Jan 22, 1917

Sanaphos versus Sanatogen a Comedy of Quackery

The vicissitudes of the German nostrum Sanatogen since the beginning of the war, have been described in previous letters They are not yet ended, and may be described as a comedy in three acts

Act I Taking advantage of the animosity against everything German, a British company starts a new nostrum under the name of Sanaphos and with the usual blatant boastfulness, proclaims it a soverign remedv and an improvement on Sanatogen

Act II The government sells the assets of Sanatogen to a British company (The Journal, Dec 16, 1916 p 1861) which announces that 'the business will be conducted on those thorough scientific lines which have in the past given the Germans almost a monopoly in the production of skilful organic compounds" Many physicians" it was also stated 'informed us that they were disappointed with the effects of the numerous imitations of Sanatogen"

Act III The wrath of the Sanaphos people has been aroused by this move and they have sent to physicians the following circular letter as a rejoinder

> In accordance with the strange policy adopted by our Government in connection with Enemy concerns the German owner of Sanatogen has been allowed to capitalise his good will [This is only another way of saying that the government has sold the good will and the question what will be done with the proceeds remains for settlement after the war The object of course, is to make capital out of the anti German feeling of the country] Presumably the proceeds and the accumulated profits collected for him by the State will be held for his benefit at the end of the War The new owners have in connection with their advertising scheme thought it right to attack their British competitors We desire to make it clear that Sanaphos is not and never was an imitation of Sanatogen but it is what it professed to be viz an improvement on Sanatogen as is proved by the *following* scientific statement Considerable light has recently been thrown on the *etiology* of deficiency diseases and you will agree that nervous disorders come within this category Healthy nutrition is the *only* restorative in such cases and that is why the nerve food Sanaphos is so remarkably *successful* It does not supply mere constituents like casein and *phosphorus* compounds but contains also the vitalising and activating entities vitamines and enzymes *In other* words it is not a moribund chemical combination of casein and phosphates, but provides *in addition* the quickening nourishing qualities characteristic of fresh uncooked milk due to unde stroyed vital constituents *Sanaphos* is *therefore* paramount in the treatment of deficiency diseases and its *powerful* restorative effects as a nerve food and general reparative is thus accounted for by well established physiological facts It is unique also in being soluble pre senting its constituents when mixed with *water* exactly in the same condition as milk and is further reinforced with easily appropriated organic phosphorus compounds

Investigation of Cerebrospinal Fever

In the first year of the war outbreaks of cerebrospinal fever occurred among the newly enlisted young soldiers in several of the camps scattered throughout England The director-general of the Army Medical Service at once arranged for an investigation of the disease by the Medical

Research Committee (a body appointed under the insurance act for the purpose of organizing medical researches) A central laboratory and thirty-seven district laboratories were equipped

The report of the committee, which has just been published is most important It was found by agglutination tests that there were four different types of meningococci From these a serum was prepared for the treatment of the disease It was found that 1 A case of cerebrospinal fever yields only a simple type of meningococcus from the cerebrospinal fluid, that is, a case is always strictly one type or another 2 The type found in the nose is always the same as the type in the brain 3 The germ is always present in the nose at the beginning of the attack, therefore every case of the disease is an instance of a "carrier" becoming a victim to his own carried infection 4 Finally, "type breeds true' in every case, the types are not interchangeable As soon as a case is diagnosed serum is administered Swabs are taken from the nose and from all contacts The energy with which this is done is shown by the fact that in the case of an outbreak in a large garrison, a large section amounting to 10 000 men, the vast majority of whom had not been in contact with patients, were swabbed and 400 of these were isolated until they became free from organisms The results of treatment indicate great improvement, thus out of thirty-three military cases treated in the London district alone last season by serum prepared under these methods, only three patients died, a result in marked contrast with the 40 to 60 per cent mortality usually found before this serum was available

The Suppression of Quacks

Lord Rhondda (president of the Local Government Board) received a deputation yesterday from a number of local authorities and medical bodies who submitted their reasons for urging that unqualified practitioners should be prevented from undertaking the treatment of venereal diseases The lord mayor of Birmingham expressed the opinion that public money should not be spent unless the best results could be obtained, and that the work should not be minimized by unqualified persons being allowed to treat venereal cases These diseases, to be perfectly treated, should be taken in hand in the early stages, and in order to protect the work of the local authorities quack advertisements should be suppressed, and unqualified persons prevented from treating the patients Dr Frederick Taylor, president of the College of Physicians, said that theoretically all diseases should be treated by those who knew how to deal with them and for that reason the Royal College of Physicians asked that unqualified persons should be stopped

Lord Rhondda, in reply to the members of the deputation said that his department fully realized the burning nature of the great question We had to consider not only the health of the present population but also the health of future generations, and the need of bringing up a healthy race Of all the matters which came before him he looked on this as one of the most urgent and important questions which his department had to deal with in the near future Having taken that view and having put their hands to the plow, there would be no turning back He thought he could give them that assurance He wished to thank the Royal Commission on Venereal Diseases for the work it had done He thought it was largely due to the commission that the country today was so impressed with the urgency of the matter They would not expect him to commit the government definitely that day to any particular form of legislation, but he thought he could give them the assurance that legislation would be required, and that it would probably be brought in He was perfectly satisfied that physicians were actuated by considerations of state policy and not self-interest

Restriction of the Production of Alcoholic Drinks

The government has issued an order reducing the quantity of beer to be brewed from April 1 to 70 per cent of the output of the preceding year This means a reduction to one half of that of the year preceding the war There is to be a corresponding restriction in the release of wine and spirits in bond

The food controller, Lord Devonport, states that these steps are in no way to be deemed measures of temperance or social reform The barley, sugar and other ingredients used in brewing are required for food It is a question of bread versus beer In the year preceding the war ending March 31, 1914, the quantity of beer brewed amounted to 36 000,000 standard barrels The production of beer will be restricted by the new order to 18 200,000 standard barrels The food side of the reduction is represented by 286,000 tons of barley, 36,000 tons of sugar and 16,500 tons of grits, also a brewing ingredient On the transport side there will be, first of all, a large saving in mercantile marine tonnage, and further, a considerable saving in land transport, such as railway and other forms of haulage There will also be a consequent reduction in the amount of labor employed and fuel consumed in the process of manufacturing beer This restriction of brewing will further have a direct favorable effect on the production of meat and milk, because it will set free for the use of agriculturists—the class which produces meat and milk—a greater percentage of offals (the residuum of the barley used in brewing) than at present produced from brewers' grains At present the brewer returns 25 per cent of the barley he uses in the shape of feeding offals But the barley, when milled—as it is intended to be by this order—gives, in the first place, 50 per cent of flour, which is, of course, direct human food, and, of the remainder, 40 per cent is returned in the shape of what is termed millers' offals The liquor interest has asserted both by advertisement and by misinformed press statements that any restriction of brewing would have the injurious direct effect on feeding stuffs used by agriculturists As a matter of fact, under these restrictions, the contrary will be the case

Association News

THE NEW YORK SESSION

Scientific Exhibit

The Scientific Exhibit as the New York Session will occupy the Belvedere on the ninth floor of the Hotel Astor The Belvedere is the summer roof-garden restaurant of the hotel It is a beautiful hall with a glass roof and sides, and occupies the entire width of the building Probably never before has the Scientific Exhibit been so luxuriously housed Applications for space and a plat of the Exhibit Hall will be sent on request to individuals or institutions desiring to make exhibits Applications should be made as early as possible Final assignment of space will be made Monday, April 2, 1917, and all applications for space must be received before that time The exhibit will open at noon, Monday, June 4, and will remain open until noon, Friday June 8 The Scientific Exhibit has come to be regarded as one of the features of the Annual Session, and the exhibit at New York promises to be one of the best ever held Application blanks and further details can be secured from Dr Frederick R Green Director Scientific Exhibit American Medical Association, 535 North Dearborn Street Chicago

List of New York Hotels Recommended by the Local Committee on Arrangements

The local Committee on Arrangements, on recommendation of its subcommittee on hotels, urges those who plan to attend the coming annual session in New York June 4 to 8 to address the management of the hotel of their selection to make reservation directly with the hotel Those who plan to attend the New York session should make their selection and write directly to the hotel, stating the accommodations desired and indicating the rate they are prepared to pay The management of the hotel should be advised of the day on which guests expect to arrive in New York and the length of time they plan to remain The local committee assures those who write for accommodations that they will receive a prompt response from these hotels If, in any instance, a satisfactory arrangement with some one of the listed hotels is not made, write to the chairman of the subcommittee on hotels, Dr Reginald H Sayre, 17 West Forty-Third Street, New York

The accompanying table lists a number of New York hotels indicating the accommodations which are offered and naming the rates per day All rates are for accommodations on the European plan except when, as indicated, the American plan is also offered

TABLE OF DAILY RATES AND ACCOMMODATIONS OFFERED BY NEW YORK HOTELS

Hotels, Number of Rooms and Street Addresses	Rooms without Bath		Rooms with Bath		Parlor, Bedroom and Bath or Connecting Rooms for One or More Persons*
	For One Person	For Two Persons	For One Person	For Two Persons	
Astor—1,000—Times Square	$ $	$ $	$ 4 00 to $ 6 00	$ 5 00 to $ 8 00	$ 9 00 to $12 00
General Headquarters, also headquarters of the Sections on Ophthalmology, on Laryngology, Otology and Rhinology and on Stomatology					
Biltmore—1,000—Madison Ave and 43d			4 00 to 5 00	6 00 to 7 00	
Headquarters of the Sections on Practice of Medicine and Preventive Medicine and Public Health					
Manhattan—700—Madison Ave and 42d	2 50		3 50 to 4 00	5 00	
Headquarters of the Sections on Pharmacology and Therapeutics and on Dermatology					
McAlpin—1 600—Broadway and 34th	2 50 to 3 00	3 50 to 4 00	3 00 to 4 00	4 00 to 5 00	6 00 to 8 00
Headquarters of the Sections on Diseases of Children, on Nervous and Mental Diseases, on Pathology and Physiology and on Gastro Enterology and Proctology					
Waldorf Astoria—1 200—Fifth Ave and 34th	3 00	4 00	4 00	6 00	14 00
Headquarters of the Sections on Surgery, General and Abdominal, on Obstetrics, Gynecology and Abdominal Surgery, on Genito Urinary Diseases and on Orthopedic Surgery					
Albemarle—25—Broadway and 54th			2 00	3 00	4 00
Algonquin—250—59 W 44th			2 50	3 50	5 00 to 6 00
Ansonia—1 600—Broadway and 73d	2 00	3 00	2 50	5 00	6 00 to 10 00
Arlington—175—18 W 25th					
European	1 50	2 50	2 00	3 00	3 00 to 4 00
American	3 00	5 50	3 50	6 00	4 50 to 7 00
Belleclaire—320—Broadway at 77th			2 50	3 50	5 00 to 6 00
Belmont—700—Park Ave and 42d	2 50 to 3 50	3 50 to 4 50	3 50 to 8 00	4 50 to 6 00	
Berkley—300—170 W 74th			3 00	5 00	
Blackstone—300—50 E 58th			2 50	4 00	5 00 to 6 00
Breslin—500—Broadway and 29th	2 00 to 3 00	4 00 to 5 00	2 50 to 4 00	5 00 to 8 00	
Bristol—180—122 W 49th					
European	1 50	2 00	2 00	3 00	4 00 to 6 00
American	3 00	5 00	3 50	6 00	7 00 to 12 00
Broztell—250—Fifth Ave and 27th			1 50	2 50	
Buckingham—260—5th Ave and 50th	1 50	2 50	2 50	3 50	
Calumet—140—340 W 57th			1 50	2 50	
Claridges—250—Broadway and 44th	2 50	3 50	3 00 to 6 00	4 00 to 8 00	8 00
Clendening—230—202 W 103d			1 50 to 3 00	2 00 to 3 00	
Collingwood—250—45 W 35th	1 50	2 00	2 50	3 00 to 3 50	5 00 to 7 50
Colonial—300—81st St and Manhattan Sq	1 50		2 00		
Continental—300—Broadway and 41st			2 00 to 3 00	3 00 to 4 00	
Cumberland—250—Broadway at 54th	1 50 to 2 00	2 50 to 3 00	2 00 to 2 50	3 00 to 3 50	4 00 to 5 00
Earle—150—103 Waverly Pl					
European			2 00	3 00	4 00 to 5 00
American			3 50	5 00	6 00 to 7 00
Endicott—600—Columbus Ave and 81st	1 00 to 1 50	2 00 to 2 50	1 50 to 3 50	250 to 5 00	
Flanders—300—135 W 47th			1 50 to 2 50	2 50 to 3 00	3 50 to 4 00
Fourteen East 60th—350			3 00 to 4 00	3 00 to 4 00	8 00
Gotham—400—Fifth Ave and 55th			4 00 to 5 00	5 00 to 8 00	
Great Northern—400—118 W 57th			2 50 to 3 00	3 50 to 4 00	5 00 to 7 00
Herald Square—310—114 W 34th	1 50		2 00		5 00
Hermitage—250—Seventh Ave and 42d	1 50 to 2 00	2 50 to 3 00	2 00 to 3 00	3 50 to 5 00	
Holland House—350—5th Ave and 30th			3 00	4 00	5 00 to 8 00
Holley—200—Washington Sq W					
European			1 50	2 50	
American			3 00	5 00	
Imperial—800—Broadway and 32d	2 00	3 00	2 50 to 3 00	4 00	5 00
Judson—200—53 Washington Sq					
European	1 00	2 00	1 50	2 50	
American	2 50	5 00	3 00	6 00	
Knickerbocker—600—Broadway and 42d	2 50	4 00	3 50	5 00 to 8 00	
Laurelton—150—145 W 55th			2 00	3 00	
Le Marquis—170—12 E 31st					
European	1 50	2 00	2 00	3 00	
American	3 00	5 00	3 50	6 50	
Leonori—225—Madison Ave and 63d	1 50			3 00	5 00 to 10 00
Lucerne—300—201 W 79th			1 50	2 00	
Madison Square—200—37 Madison Sq			2 00	3 00 to 3 50	4 00 to 8 00
Majestic—700—W 72d at Central Park	2 00	3 00	2 50	4 00	6 00 to 8 00
Manhattan Square—300—50 W 77th			2 50	3 00	3 50 to 10 00
Margaret—200—97 Columbia Heights, Brooklyn	1 00		2 00		3 00
Marie Antoinette—500—Broadway and 66th	2 00	4 00	3 00	5 00	8 00
Marlton—150—3 W 8th	1 00 to 2 00	2 00 to 3 00	2 00 to 3 00	3 00 to 4 00	
Martha Washington—425—29 E 29th (women only)	1 50	2 50	3 00	4 00	
Martinique—625—Broadway and 32d	2 00	3 00	2 50	3 50	6 00
Murray Hill—600—Park Ave and 40th	2 00	3 00	3 00	4 00	5 50 to 7 50
Nassau—500—Long Beach			4 00 to 5 00	5 00 to 8 00	
Netherland—400—Fifth Ave and 59th	1 50 to 2 00		2 00 to 4 00	3 50 to 5 00	
New Grand—400—Broadway and 31st	1 00		1 50		
Park Avenue—430—Park Ave and 32d	1 50 to 2 00	2 50 to 4 00	3 00	4 00 to 5 00	
Plaza—750—5th Ave and 58th			3 50	4 00	7 00 to 10 00
Prince George—750—5th Ave and 28th			2 50	4 00	
Ritz Carlton—425—Madison Ave and 46th			5 00	7 00 to 10 00	
Rutledge—250—Lexington and 30th (women only)					
European	1 00	2 00	1 50	2 50	
American	2 50	5 00	3 00	6 00	
St Margaret—130—129 W 47th	1 00		1 50		
St Paul—225—50th St and Columbus Ave	1 00	2 00	2 00	3 00	3 50
St Regis—340—Fifth Ave and 55th	4 00	5 00	5 00 to 6 00	6 00 to 10 00	
San Remo—600—Central Pk W and 74th			2 00	2 50	
Seville—475—Madison Ave and 29th	1 50	2 50	2 50	3 00	4 00 to 5 00
Sherman Square—500—Broadway and 70th			2 00 to 2 50		
Somerset—225—150 W 47th	2 00	3 00			
Union Square—130—15th St and 4th Ave	1 50 to 2 00	3 00 to 4 00			4 00
Vanderbilt—600—34th St and Park Ave			3 00	5 00	4 00 to 7 00
Van Rensselaer—200—11th St near 5th Ave					
European			1 50	2 00	
American			3 00	5 00	2 50 to 3 00
Wallick—400—Broadway and 43d	1 50 to 2 00	2 50 to 3 00	2 00 to 3 00	4 00 to 6 00	6 00 to 8 00
Webster—160—40 W 45th			2 50	3 50	
Willard—130—252 W 76th			1 50	2 00	4 00
Wolcott—300—31st St and Fifth Ave	2 00		2 50	5 00	
Woodstock—365—43d St near Broadway	2 00	3 00	2 50	3 50	
Woodward—400—Broadway and 55th	1 50		2 00	3 00	5 00 to 8 00
York—250—Seventh Ave and 36th	1 50 to 2 00	2 50 to 3 00	2 00 to 3 00	3 50 to 5 00	4 00

* For definite information concerning accommodations offered and rates write to the hotels

Marriages

Edward E Montgomery, M D Philadelphia to Miss Alice Jayne of Tarrytown N Y at Yonkers N Y, February 6

Albert Thomas Grills, M D, to Miss Gertrude Chipman, both of Lorain, Ohio, in Cleveland, January 25

Philip John Murphy, M D, Washington D C, to Miss Helen Rasmussen of Chicago February 3

Monroe A Maas, M D Selma Ala to Miss Beulah A Houseman of Shrewsbury Pa, January 24

Francis Xavier Mahoney M D, to Miss Elizabeth C Robinson, both of Boston, January 29

John Roscoe Steagall, M D to Miss Gertrude Irene Still, both of Tacoma, Wash, January 18

Waller Halladay Dade M D, Manila, P I to Miss Clara Everhart of Norfolk, Va recently

John P Zohlen, M D Sheboygan, Wis, to Miss May Weiss of Milwaukee January 17

Henry J Roth M D, to Miss Annabell McAuley both of Chicago, January 27

Deaths

William Mabon, M D, New York, Bellevue *Hospital Medical College*, 1881, aged 56, a member of the Medical Society of the State of New York and American Medico-Psychological Association, assistant physician to the Morris Plains (N J) State Hospital from 1885 to 1887 and of the Utica (N Y) State Hospital from 1887 to 1895, superintendent of the Willard (N Y) State Hospital in 1895 and 1896, and of the St Lawrence (N Y) State Hospital from 1896 to 1903, general superintendent of Bellevue and Allied hospitals New York, in 1903 and 1904 and superintendent of the Manhattan State Hospital since 1906, lecturer on mental diseases in his alma mater in 1907 president of the New York State Commission in Lunacy from 1904 to 1906, one of the best known alienists in the country, died at his home, February 9, from pneumonia

Eugene Adelbert Chapman, M D, Stafford Springs, Conn, University of Buffalo N Y, 1862, aged 77, formerly a member of the Connecticut State Medical Society, a veteran of the Civil War, and afterward captain and assistant surgeon U S Army, quarantine officer at Brazos, Texas, in 1865 postmaster of Henderson, N Y in 1872 and 1873, coroner of Jefferson County in 1870 and 1886, for nine years a member of the board of county supervisors and once its chairman, county clerk of Jefferson County from 1900 to 1906, died at his home, January 29, from cerebral hemorrhage

Amos Rufus Solenberger, M D, Colorado Springs, Colo Northwestern University Medical School, Chicago, 1885, aged 63, a Fellow of the American Medical Association, for several years a practitioner of Chicago, and instructor of laryngology rhinology and otology in his alma mater from 1896 to 1899, a member of the American Academy of Medicine and American Laryngological, Rhinological and Otological Society, a specialist on diseases of the ear, nose and throat, who went to Colorado in 1902 on account of ill health, died in Colorado Springs February 4

Asa Stone Couch, M D, Scranton, Pa, Homeopathic Medical College of Philadelphia 1855, aged 83, one of the most prominent men of his school in the East, first president of the New York State Board of Medical Examiners and of the New York State Homeopathic Medical Society, one of the founders of the New York State Hospitals at Middletown and Tonawanda and president of the board of directors of each of these institutions died at the home of his son in New York February 2

James Howell Billingslea, M D, Westminster, Md, University of Maryland Baltimore, 1864, aged 73, a member of the Medical and Chirurgical Faculty of Maryland, for fifty-two years a practitioner of Westminster, president of the Union National Bank, Consolidated Public Utilities Company and *Democratic Advocate* Publishing Company, died at his home, January 29, from cerebral hemorrhage

Ernest Edwin Martin, M D, Mead Colo College of Physicians and Surgeons Chicago 1900, aged 46, formerly a Fellow of the American Medical Association for three years surgeon for the Union Pacific System at Carr, Colo, formerly city physician of Del Norte, Colo, and physician of Rio Grande County, died in the Longmont Hospital, Longmont, Colo, January 25, from pneumonia

Henry J Burwash, M D, Chicago, McGill University, Montreal, 1879, L R C P, London, 1879, aged 62, a Fellow of the American Medical Association, surgeon to the Norwegian Lutheran Deaconess Hospital, corporation surgeon for the General Accident Assurance Company, for a long time surgeon for the Northwest Mounted Police of Canada, died at his home, February 7, from pneumonia

John Emil Wadsworth, M D, Skowhegan, Me, Medical School of Maine Brunswick, 1896, aged 46, a Fellow of the American Medical Association, founder of the Somerset Hospital Skowhegan, chairman of the State Board of Registration for Nurses, physician to the State Women's Reformatory Skowhegan, and school physician, died at his home January 29, from pneumonia

Henry Aloysius Towle, M D, Newark, N J, College of Physicians and Surgeons in the City of New York 1888, aged 56, a Fellow of the American Medical Association, laryngologist to the German Hospital and City Dispensary of Newark, a member of the visiting staff of St James' and St Michael's hospitals, Newark, died at his home, January 29, from heart disease

James S Porteus, M D, Scranton and Taylor Pa, University of Pennsylvania Philadelphia, 1873, aged 76 formerly a member of the Medical Society of the State of Pennsylvania, also a druggist postmaster of Taylor from 1889 to 1894, for more than fifteen years visiting physician of the Pittston Poor District, died at his home in Taylor, January 26

Fortis Monroe Noble, M D., Bloomingdale N Y, University of Vermont Burlington 1890, aged 52 formerly a member of the Medical Society of the State of New York, attending physician to St Gabriel s Sanatorium in the Adirondacks for twenty years, for two years coroner of Essex County, died at his home, January 19 from pneumonia

John Leddell Seward, M D, Orange, N J, University of Pennsylvania, Philadelphia 1867 Hahnemann Medical College Philadelphia 1873 aged 72 governor and consulting physician to St Mary's Hospital, Passaic, N J, surgeon of volunteers during the Civil War died at the Interpines Sanatorium Goshen N Y January 29

Clement P Wilkinson, M D, New Orleans, Tulane University, New Orleans 1874, aged 65, from 1884 to 1888 president of the Louisiana State Board of Health, assistant quarantine physician and quarantine physician and for a time acting assistant surgeon, U S Army, died at his home, January 31, from cerebral hemorrhage

Charles Allison Oaks, M D, Ingleside Neb, John A Creighton Medical College Omaha Neb, 1902, aged 38 formerly a Fellow of the American Medical Association, a member of the Nebraska State Medical Association, second assistant physician at the Ingleside Hospital for the Insane, died January 25, from pneumonia

Frederick J Harter, M D, Herkimer, N Y, College of Physicians and Surgeons in the City of New York 1880 aged 61, a member of the Medical Society of the State of New York, who served for several terms as president of the village of Moravia and local health officer, died at his home, January 20, from pneumonia

James Strong Billingsley, M D, Belleville, Kan, Rush Medical College, 1883, aged 59, a member of the Kansas Medical Society, local surgeon of the Rock Island System, and secretary of the Republic County Board of Health, died in Stormont Hospital, Topeka Kan, January 26, from endocarditis

Carl von Arx Schneider, M D, Gowanda N Y, Cleveland Homeopathic Medical College 1904, aged 37, a member of the Medical Society of the State of New York assistant superintendent of the Gowanda State Hospital for eleven years, died in that institution January 29, from typhoid fever

Roderick Campbell McLeod, M D, North Sydney N S, New York University, New York 1891 Lieutenant-Colonel Canadian Army Medical Corps, and in command of the unit offered by the University of St Francis Xavier, Nova Scotia, died in Bramshott Camp, England January 7 from anthrax

Albert Clarence Lane, M D, Woburn Mass, Long Island College Hospital Brooklyn 1879, aged 65, a member of the Massachusetts Medical Society, who was taken to the Massachusetts General Hospital, Boston, January 26, for a surgical operation, died at that institution February 1

John A Hoffmeyer, M D, Buffalo, University of Buffalo, N Y, 1880, aged 63, a member of the Medical Society of the State of New York, county medical examiner for Erie County in 1882 and for many years a district physician, died at his home, January 26, from heart disease

Amelia Ann Duran Dickinson, M D, Evansville, Ind, Hering Medical College, Chicago, 1900, aged 42, a Fellow of the American Medical Association, assistant physician to the Southern Indiana Hospital for the Insane, Evansville, died in Evansville, February 8, from pneumonia

George Henson Davis, M.D, Brooklyn, Long Island College Hospital, 1895, aged 43, formerly a member of the Medical Society of the State of New York, a member of the staff of Trinity and Bushwick hospitals, Brooklyn, died at his home, January 28, from disease of the throat

Nicholas Henry Freeland, M D, Tarrytown, N Y Bellevue Hospital Medical College, 1867 aged 72, president of the Tarrytown Water Board, formerly surgeon of the Sixteenth Battalion, N G S N Y, died at his home, January 24, from carcinoma of the stomach

Samuel West, M D, Idalia Mo, College of Physicians and Surgeons Keokuk Iowa 1879, aged 61, a member of the Missouri State Medical Association, and for many years a practitioner and druggist, died at his home, January 22 from pneumonia

Thomas William Musgrove, M D, Sultan, Wash, Harvard Medical School 1871 aged 75 a member of the Washington State Medical Association, for five years town clerk of Sultan, died at his home in that place, January 23, from heart disease

Julius L Philipp Hoffmann, M D, New York, University of Berlin, Germany, 1876, aged 76, formerly a member of the Medical Society of the State of New York, one of the first board of directors of the *Volkszeitung,* died at his home, January 25

Ebenezer W Schooley, M D, Toledo Ohio, Eclectic Medical Institute Cincinnati 1872, aged 75 formerly local surgeon for the Cincinnati, Hamilton and Dayton system, a veteran of the Civil War, died at his home, about January 18

Edgar Hart, M D, Pennington, N J, University of Pennsylvania, Philadelphia, 1871, aged 60, president of the Borough Board of Health and vice president of the board of trade, died at his home, January 28, from heart disease

Johan Adam Lauer, M D, Leavenworth, Kan, Kaiser Wilhelms University, Strassburg, Germany 1884, aged 68, for more than thirty years a practitioner of Leavenworth, died at Cushing Hospital in that city, January 23, from pneumonia

Horace A Talley, M D, Wentzville Mo, Medical College of Virginia, Richmond 1884, aged 63, while driving in his automobile over a grade crossing in Wentzville, January 30, was struck by a Wabash train and instantly killed

William Berrien Burroughs, M D, Brunswick, Ga, Savannah (Ga) Medical College 1867, aged 74, a Confederate veteran, an authority on the history of Georgia and the South Atlantic Coast, died at his home, January 21

Charles M Wheeler, M D, Stockton, Calif, Bennett Medical College, Chicago, 1881, aged 66, who had been blind for about seven years as a result of exposure to Roentgen rays, died at his home January 22

Cassius J Logans, M D, South Glens Falls, N Y, University of Vermont, Burlington 1879, aged 71, a veteran of the Civil War, in which he served in the United States Navy, died at his home January 18

Farrington Wilkes, M D, Oakland Calif, University of California San Francisco, 1894, formerly a member of the Medical Society of the State of California, died at his home, January 26

Eliza Knowles Morgan, M D, Lawrence, Kan, Cleveland Homeopathic Medical College 1864, aged 82, for many years a resident of Leavenworth Kan, and director of the Cushing Hospital, died at her home, January 14

William Lidderdale Goddard, M D, Saulsbury, Tenn, Memphis (Tenn) Hospital Medical College, 1890, aged 68, a Fellow of the American Medical Association, died at his home, December 6 from nephritis

James Buell Thompson, M D, Prospect, Pa, Jefferson Medical College, 1889, aged 55, a member of the Medical Society of the State of Pennsylvania, died at his home, December 24, from cerebral hemorrhage

Jasper M Stuart, M D, McGehee, Ark, Louisville (Ky) Medical College, 1900, aged 49, formerly a Fellow of the American Medical Association, died at his home, January 18, from cerebral hemorrhage

James K Waters, M D, Thurmont, Md,, University of Maryland, Baltimore, 1869, aged 78, registrar of wills of Frederick County for six years, president of a bank, and a druggist, died recently

David J Merriman, M D, Painesville, Ohio, Detroit Medical College, 1870, aged 81, formerly a member of the Ohio State Medical Association, died in the German Hospital, Cleveland, January 14

William S Hart, M D, Lake Odessa Mich, Western Reserve University Cleveland 1881, aged 77, a pioneer practitioner and druggist of Ionia County Mich, died at his home, January 20

John E Younglove, M D, Bowling Green, Ky, Homeopathic Medical College of Missouri St Louis, 1861, aged 90, also a druggist, died at his home, January 2, from cerebral hemorrhage

Charles Edward Humphrey, M D, Bethlehem Pa, University of Pennsylvania, Philadelphia 1863, aged 74, surgeon of U S Volunteers during the Civil War, died at his home, January 20

David Seely Adams, M D, Macomb Ill, Keokuk (Iowa) Medical College, 1900, aged 60, a Fellow of the American Medical Association, died at his home, January 24, from pneumonia

John J Devine, M D,, Tom Bean, Tex, Atlanta (Ga) Medical College 1875, aged 65, formerly a member of the State Medical Association of Texas, died at his home, January 19

David F Sullivan, Frankfort S D (license, South Dakota, 1887) aged 72, a practitioner since 1869, vice president of the Spink County Board of Health, died at his home, January 10

Mary A Latham, M D, Spokane Wash, Cincinnati College of Medicine and Surgery, 1886 aged 72, died in the Sacred Heart Hospital, Spokane, January 20, from pneumonia

Benjamin Franklin O'Daniel, M D, Denver, University of Louisville, Ky 1874, aged 66, died at Mount Airy Sanatorium, Denver, October 15 from chronic interstitial nephritis

James Henry Wilkerson, M D, Knoxville Tenn, Tennessee Medical College, Chattanooga 1892, aged 50, a Fellow of the American Medical Association, died at his home, January 1

Charles Valores Webb, M D., Wallingford, Conn, Hahnemann Medical College, Philadelphia 1898, aged 44, died in the Middletown (Conn) State Hospital, December 26

Gordon White, Nashville, Tenn, Baltimore College of Dental Surgery, 1879, aged 59, a Fellow of the American Medical Association, died at his home December 6

Morris Pitcher, M D, Sardinia, N Y, Tuft's College Medical School 1900, aged 31, a specialist in diseases of the eye, ear, nose and throat, died at his home, January 17

Charles Hope Mullen, M D, Foster, Ky, University of Nashville, Tenn, 1858, aged 78, a veteran of the Civil War, died at his home January 12, from senile debility

William F Phillips, M D, Wilmore, Ky, University of Louisville Ky, 1893, who was stricken with paralysis eight weeks before, died at his home January 19

Nathan A Mossman, M D, New York, New York Homeopathic Medical College New York 1861, aged 79, died in his apartments in New York, January 15

William R Blossom, Caribou Me (license, Vermont, 1903), aged 58, a member of the Maine Medical Association, died at his home, about January 2

Charles J Holmgren, M D, Oakland, Calif, Hahnemann Medical College of the Pacific, San Francisco, 1889, aged 82, died at his home, January 18

Samuel Houston Ridenour, M D, Pittsburgh, University of Pittsburgh, 1890, aged 58, died at the home of his sister in Cumberland Md, January 1

John J Ryan, M D, East St Louis, Ill, American Medical College, St Louis, 1878, aged 72, died in St Mary's Hospital, East St Louis, January 20

W L Noel, Boaz, Ala (license, LaMar County, Ala), aged 68, a practitioner and druggist, died, November 23

Z N Young, Lafayette, Tenn (license, Tennessee, 1889), aged 75, died at his home, about January 17

Thomas G Welch, Mount Scott, Okla (license, Oklahoma), aged 80, died at his home, December 21

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

FIRWEIN

Report of the Council on Pharmacy and Chemistry

Firwein is a product of The Tilden Company, New Lebanon, N Y It is sold under the claim that when swallowed it has a predilection" both for the bronchial mucosa and also for the genito urinary organs To quote

> Expectorant Sedative Antispasmodic in the Treatment of Inflammations of the Bronchial and Genito Urinary Mucosæ
>
> Firwein being a bland soothing balsam possesses a wide range of adaptability and increased potency because of its healing virtues and usefulness as an expectorant, sedative and antispasmodic in bronchitis and inflammation and catarrh of nose throat and lungs '
>
> Firwein has a special predilection for mucosae this being as marked in diseases of the genito urinary system as it is in the respiratory organs In inflammatory diseases of the genito urinary organs its bland, curative properties are exerted in a gratifying degree In cystitis and uritis it is clearly indicated

Little information is given concerning the composition of Firwein An old circular says

> Firwein contains Phosphorus Iodin and Bromin finely blended with a balsameous elixir made from the fir tree

From a more recent circular we quote

> Firwein is prepared from the inside fresh green bark of the fir tree

The label on the product reads

> Firwein is pleasantly and effectively blended with salts of iodin and bromin held in solution with 20 per cent alcohol

The therapeutic claims made for Firwein and the mystery enshrouding its composition make it obvious that the product is intended to appeal to those who are either thoughtless or ignorant This is emphasized by the suggestion that Firwein be combined with (1) cod liver oil (under the claim that it will 'promote the efficiency of the oil"), with (2) whisky for the treatment of bronchorrhea of the aged, and with (3) syrup of hypophosphites for the treatment of persistent bronchitis

As the composition of Firwein is secret the therapeutic claims unwarranted and its use irrational the Council declared it inadmissible to New and Nonofficial Remedies

FIROLYPTOL PLAIN AND FIROLYPTOL WITH KREOSOTE

Report of the Council on Pharmacy and Chemistry

Firolyptol, another product of The Tilden Company is we are told, composed of eucalyptol 10 drops cottonseed oil ½ ounce and Firwein enough to make 1 ounce As the composition of Ferwein is secret it is evident that the composition of Firolyptol is also unknown, except to the manufacturers 'Firolyptol with Kreosote' is said to contain in addition to whatever may be the component parts of Firolyptol 10 minims of creosote to each ounce According to an advertisement, Firolyptol with Kreosote is 'antituberculous antistrumous" and contains all the desired features of cod liver oil and is readily assimilated"

The advertisements of Firolyptol Plain' and "Firolyptol with Kreosote seem to have for their key-note the assertion that cottonseed oil is a particularly valuable nutriment and that when combined with constituents of Firolyptol and Firolyptol with Kreosote becomes particularly valuable to the tuberculous To quote from an advertising circular

> Now that the reconstructive properties of cottonseed oil are better appreciated by the profession the advantages that follow the administration of a palatable emulsion of this strengthening and fattening food product are being demonstrated in hundreds of cases where formerly reliance would have been placed in cod liver oil A recent writer says that pure cottonseed oil is the greatest and purest vegetable oil known to chemistry and will do much toward revolutionizing the treatment of the GREAT WHITE PLAGUE If the treatment of tuberculosis could resolve itself into the administration of a fatty substance in a readily assimilated form there would be no need for any part of FIROLYPTOL but the Cottonseed Oil The toxic material constantly produced in the system by the germs of tuberculosis tend to expose it more and more to the ravages of the disease, and the physiologic functions of the body suffer a constant depression To neutralize this germ activity with a consequent production of toxins it seems most logical to employ such agents as have demonstrated their suitability for such purposes, for which reason Eucalyptol and Kreosote with Firwein are incorporated in FIROLYPTOL

The assertion that cottonseed oil is an especially valuable form of fat is without warrant, but even if it were true the fat is available in cheap and palatable forms in numerous other cottonseed oil products It is unnecessary to discuss the problematical value of creosote in the treatment of tuberculosis or the value of eucalyptol (now generally abandoned) or even of the secret mixture Firwein Food and fresh air, not drugs, constitute the fundamentals of the treatment of tuberculosis and it is both irrational and detrimental to the interests of the tuberculous to administer various potent agents in fixed and unknown amounts with such simple articles of food as cottonseed oil Neither of these products is acceptable for New and Nonofficial Remedies

Editorial Note —Firwein[1] has been advertised to physicians for twenty-five or thirty years and it is a sad commentary on the intelligence of our profession that a preparation sold under such obviously false and misleading not to say silly claims should still be in existence Firwein is claimed to "prevent waste of tissue' in tuberculosis If it had this power it would have found its place long ago among the few great agents in drug therapy As a matter of fact Firwein has gained virtually no recognition outside of the literature of the Tilden concern The claims made for Firwein are a peculiar mixture of studied candor—when the truth is not likely to hurt its sale—and inane vaporing—when the facts would not redound to its credit The Tilden Company declares that Firwein stands without a peer in its class" But the company adds 10 drops of eucalyptol and some cottonseed oil to this peerless product and an improvement is born—'Firolyptol ' Then, to perfect the already perfectly perfected, 10 drops of creosote are added to Firolyptol' and the profession is offered 'Firolyptol with Kreosote"! In just what verbal pyrotechnics the Tilden Company might indulge, should it decide to add ten drops of something else to Firolyptol with Kreosote" one shudders to contemplate

If we are accused of exhibiting undue levity in discussing a therapeutic problem we can only answer that it is impossible to consider seriously the Charlie Chaplins of the nostrum world The following medical journals have during 1916, carried advertisements either of Firwein or Firolyptol with Kreosote or both

Illinois Medical Journal
American Journal of Surgery
Medical Review of Reviews
Pediatrics
Charlotte Medical Journal
Indianapolis Medical Journal
Medical Summary
Medical Sentinel
Louisville Monthly Journal of Medicine and Surgery
Western Medical Times
Texas Medical Journal
Pacific Medical Journal
Medical World
Buffalo Medical Journal
Medical Herald
Southern Practitioner
Medical Fortnightly
International Journal of Surgery
Medical Times

MORE MISBRANDED NOSTRUMS

Collins' Ague Remedy, Swaim's Panacea and Swayne's Panacea—James F Ballard St Louis, was made the defendant in three cases brought by the federal government against the respective products named 'Collins' Ague Remedy" which admittedly contained 33 3 per cent alcohol was sold under the claim that it was an effective remedy for chills and fever dysentery, most forms of malarial diseases intermittent, remittent and swamp fevers, cholera morbus and diarrhea These claims the government declared were false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity "Swaim's Panacea" was found to contain nearly 5 per cent alcohol with 62 3 per cent of solids, of which 58 5 per cent was sugar There was also 1/10 of 1 per cent salicylic acid and some sarsaparilla present The public was asked to believe that this stuff was effective as a remedy and panacea for syphilis, pulmonary diseases, eczema, influenza, anemia, consumption and a great many other things These claims were declared to be false and fraudulent and made knowingly and wantonly "Swayne's Panacea" seemed to be very similar in composition to Swaim's Panacea" and was sold under claims virtually identical with those made for the latter product The government officials naturally declared these claims false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity James F Ballard pleaded guilty and was fined $30 and costs—[*Notice of Judgment No 4373*]

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[1] Three other Tilden products have been the subject of deserved and unfavorable comment in The Journal Narkine in the issue of Oct 24 1908 Hydrocyanate of Iron Tilden in the issue of June 19 1909 and Febrisol ' in the issue of June 29 1912 The first two articles are reprinted in the latest (9th) edition of The Propaganda for Reform '

Croxone—The American Croxone Co, Cleveland, Ohio distributed this product The government chemists reported that each small box of the product contained 32 capsules in each of which was a white-coated pill and a red oil The oil was essentially a small amount of oil of pine or oil of juniper dissolved in a fatty oil or mixture of oils The pill consisted essentially of strychnin, a trace of brucin, aloin hexamethylenamin, lithium carbonate, potassium nitrate and probably a trace of atropin The stuff was sold as a 'cure for rheumatism and kidney disease and a preventive of dropsy and gravel" These claims were declared false and fraudulent and applied knowingly The company pleaded guilty and was fined $25 and costs—[*Notice of Judgment No 4386*]

SAVES ELDERLY PEOPLEFROM
KIDNEY AND BLADDER MISERIES
Sleep-Disturbing Bladder Weaknesses Backache Stiff Joints Rheumatic Pains Disappear After Few Doses Are Taken
CROXONE
KIDNEY AND BLADDER REMEDY
THE AMERICAN CROXONE CO
CLEVELAND OHIO U S A
PRICE 65 CENTS

Freeman's Balsam of Fir Wafers—Edgar S Fossett, who did business under the name Freeman Pharmacal Company Portland Maine, manufactured 'Dr Freeman's Balsam of Fir Wafers' which the government declared misbranded Federal chemists reported that the lozenges consisted of sugar with very small amounts of oil of turpentine and eucalyptus with the possible presence of a trace of balsam of fir They were sold under the claim that they were an effective remedy for relieving consumption and for stopping the raising of blood in consumption' and effective also as a remedy for all affections of the throat and lungs, bronchitis, asthma croup whooping cough, la grippe, etc These therapeutic claims were declared false and fraudulent and applied knowingly and wantonly Furthermore, the fact that the name of the product would indicate that the article contained an appreciable amount of balsam of fir (which it did not) further constituted misbranding Edgar S Fossett entered a plea of *nolo contendere* and was fined $40—[*Notice of Judgment No 4391*]

Renne's Pain Killing Oil—This was another preparation put out by James F Ballard of St Louis, who in this case did business under the trade name 'Dr Herrick Family Medicine Co" The chemists of the Bureau of Chemistry declared that analysis showed it to be essentially a water-alcohol solution of sassafras oil and cayenne pepper containing 78 6 per cent alcohol and 4 per cent volatile oils There were also indications that the stuff contained a little mustard oil and soap The government charged Ballard with falsely and fraudulently claiming in reckless and wanton disregard of the truth of the statements, that this stuff was a reliable remedy for cholera, diphtheria, rheumatism, croup and a number of other conditions Ballard pleaded guilty and was fined $10 and costs—[*Notice of Judgment No 4400*]

Schuh's Yellow Injection and Schuh's White Mixture—The Schuh Drug Co, Cairo Ill put both these products on the market The first was sold under the claim that it was "a Speedy Cure for Gonorrhea and Gleet Cures in 3 to 5 days" The federal chemists reported that Schuh s Yellow Injection was an aqueous solution of boric acid carbolic acid and berberin The government charged naturally that the therapeutic claims made for this nostrum were wantonly and recklessly false and fraudulent The second preparation, Schuh s White Mixture" also was analyzed by the government chemists who reported that it was a mixture of mucilage of tragacanth balsam of copaiba, and probably sandalwood oil, flavored with cassia This stuff was sold as "a Safe and Certain Cure for Gonorrhea and Gleet Cures in 3 to 5 days" and other similar claims These, of course, were declared false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity The Schuh Drug Company pleaded guilty and was fined $10 and costs—[*Notice of Judgment No 4396*]

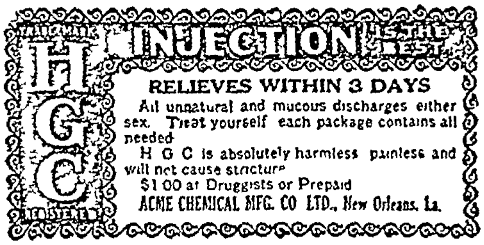
Elmore's R'eumatine Goutaline—"Dr D M Elmore's R'eumatine Goutaline" was put on the market by George Bayne, Bayonne N J, under the claim that it was a remedy for all rheumatic disorders and all forms of rheumatism and a remedy for all disorders of the kidneys, liver and bladder, besides being effective for curing malaria The government chemists reported that the stuff was apparently a dilute tincture of colchicum The claims made for it were declared false and fraudulent and applied wantonly and recklessly George Bayne pleaded guilty and was fined $10—[*Notice of Judgment No 4374*]

Armstrong's Croup Ointment—Harold G Carpenter and Herman J Pierce manufactured and sold this product under the trade name, Carpenter & Pierce Co, Troy, Pa It was claimed to be a cure for croup, catarrh, asthma, and cold in the head, throat or lungs The government chemists reported that this ointment contained eucalyptus oils and traces of other oils possibly cassia and thyme The therapeutic claims were declared to be false and fraudulent A plea of *nolo contendere* was entered by the defendants, who were fined $10 and costs—[*Notice of Judgment No 4375*]

Anticephalalgine—The defendant in this case was James I Johnson, a corporation, Raleigh, N C The stuff admittedly contained 30 per cent alcohol and 4 grains acetanilid to the ounce The government chemists reported that it also contained sodium bromid sodium salicylate, caffein and antipyrin It was sold under the claim that it was a cure for all kinds of headaches, claims that the government officials declared were knowingly false and fraudulent The defendant pleaded guilty and on payment of costs the court suspended judgment—[*Notice of Judgment No 4376*]

Wright's Rheumatic Remedy—The Wright Medicine Company Peru, Ind, made this preparation which, according to government chemists, was an emulsion composed principally of turpentine, methyl salicylate, sugar acacia, and water, with probably some resinous or plant extractive matter It was sold under the claims that it was an effective remedy for gallstones and a specific remedy for kidney and bladder troubles These claims were characterized by the government as false and fraudulent and made knowingly and in reckless and wanton disregard of their truth or falsity The company pleaded guilty and was fined $50 and costs —[*Notice of Judgment No 4398*]

H G C—This preparation was manufactured and sold by the Acme Chemical Mfg Co, New Orleans, La According to the government chemists the product was a watery solution of borax and berberin sulphate It was sold under the claim that it was a cure for gonorrhea, gleet and leucorrhea, a claim that was declared false and fraudulent The company pleaded guilty and was fined $100 and costs —[*Notice of Judgment No 4397*]


TRADEMARK
H
G
C
REGISTERED
INJECTION IS THE BEST

RELIEVES WITHIN 3 DAYS

All unnatural and mucous discharges either sex. Treat yourself each package contains all needed

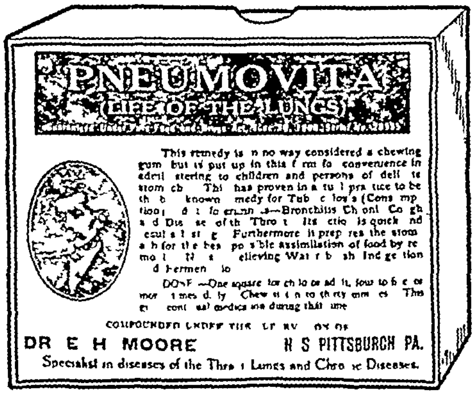
H G C is absolutely harmless painless and will not cause stricture

$1 00 at Druggists or Prepaid

ACME CHEMICAL MFG. CO LTD., New Orleans, La.

Russell's White Drops—This soothing syrup" was manufactured by the Russell Medicine Co, Providence R I and was sold under the claim that it was an invaluable remedy for the relief and cure of diarrhea and dysentery, that it would prevent convulsions and was a remedy for cholera infantum and all diseases incident to children, especially during teething Further, that it would give new life and vigor to the whole system The claim also was made that it contained nothing that would injure the most delicate child Government chemists reported that the stuff contained from 13 to 16 per cent of alcohol as well as codein, a poisonous and harmful drug The therapeutic claims were declared false and fraudulent and applied knowingly and wantonly The company pleaded guilty and was fined $20—[*Notice of Judgment No 4388*]

Pneumovita—Edwin H Moore Pittsburgh Pa, sold this stuff as the best remedy known for Tuberculosis, (Consumption) and its forerunners—Bronchitis, Chronic Cough and Diseases of the Throat" The government chemists reported that the stuff was a sweetened gum containing small amounts of charcoal and iron phosphate having a wintergreen flavor Of course the claims made were declared false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity Edwin H Moore entered a plea of *nolo contendere* The court imposed a fine of 6¼ cents, with costs of $15 07—[*Notice of Judgment No 4394*]



Correspondence

Sodium Cacodylate in the Treatment of Syphilis

To the Editor —Dr William G Ward's letter (THE JOURNAL, Feb 3 1917, p 390), and the recent admirable article by Dr Harold N Cole (THE JOURNAL, Dec 30, 1916, p 2012) recall to mind Dr J B Murphy's clinical note on the use of sodium cacodylate in the treatment of syphilis (THE JOURNAL, Sept 24 1910, p 1113), and the experimental work of Capt H J Nichols, U S Army (THE JOURNAL, Feb 18, 1911, p 492) The results of Nichols work conclusively proved, at least from a laboratory standpoint, that this drug was of very little value as a spirocheticide in combating syphilis Prior to the publication of Dr Murphy's letter, I had *employed sodium cacodylate extensively as a remedy in* psoriasis, and I still continue to use it in selected cases of the disease

Adopting Dr Murphy's suggestion I gave the agent an extensive trial in syphilis in all stages of the disease The results were extremely disappointing, from both clinical and serologic points of view More recently during the scarcity of salvarsan, I gave the drug a second trial employing it in large dosage in the hope that the previous failure had been due to the employment of insufficient amounts The results were not tabulated but, judging roughly from my experience in a score of cases its therapeutic value as an antisyphilitic was nil A few of the patients underwent a temporary improvement probably owing to the tonic effect of the drug, but in every instance the serologic findings were unaffected

R L SUTTON M D Kansas City, Mo

Compulsory Health Insurance

To the Editor —Your invitation to discuss health insurance is too attractive to be ignored During the past eight months I have read many articles by American physicians on the subject, and I have been saddened by the general tone of quiescent acceptance Those advocating insurance are entirely altruistic This group is not composed of employers, but employers will welcome the move so far as it increases economic efficiency better than other methods The altruistic workers are depending on the medical profession to educate the insured to want insurance and to keep its own remuneration low enough to make the plan feasible

Dr Lambert has had unequaled opportunity, and is probably the best informed man in the medical profession on this subject He makes no mention of advantages pro or con but contents himself with discussing details This assumption that the thing must be I consider a mistake It is the mistake which harassed the profession in England in 1912 and caused the failure of its combative efforts

Dr Lambert's report states that, after twenty-five years' experience European countries have concluded that any plan for voluntary insurance is a failure The profession agrees with insurance workers in this conclusion These countries then decide that the remedy is compulsory insurance Since volition is a failure, then compulsion must be successful This reasoning is insufficient yet five countries in a period of three years did adopt it Sufficient time has elapsed in these instances to prove that friction is continually present and will continue to be until such time as free choice of physician and unchanged relationship between patient and physician may be allowed, instead of a commercial physician hired by a third party and called through expediency This point is the greatest stumbling block that has been encountered, and it is so entirely because of increased and prohibitive expense Patients want it and the profession wants it, yet it has been necessary to ride over it with no one achieving satisfaction except the carrier of insurance

As to relative conditions, the report of the American Medical Association Health Insurance Committee shows that Norway under a voluntary plan insures 25 8 per cent, England, before the act of 1912, insured 31 per cent, and France, voluntary 10 or 12 per cent In the United States it is estimated that labor unions alone insure 10 per cent, so that when other agencies are accounted for, it seems that we are in fully as good a position as were European countries previous to the adoption of compulsory plans

Under the compulsory plan Germany has seen physicians go on strike after ten years over the free choice contention, has seen their clientele uphold them to the defeat of strikebreakers and of the organization, has temporized, and the end is not yet England at present deplores the fact that its medical profession has not improved the quality of its work as was planned in 1912 Just how or why a physician could or should improve as a salaried commercialist over what he was as a friend, trusted by choice with the lives and health of his clientele, is not clear, especially when he is handicapped by more pieces of work at a smaller rate of recompense It was, however, in the plan that he should improve, and the fact that improvement has not occurred is a bitter disappointment which is now producing complaint

None of these five countries has yet proved that compulsory insurance can be continuingly operated with satisfaction to all or even to any, of the three parties concerned—and this under forms of government in which policies can be stable and reasonably permanent! One of the misfortunes of our form of government is that no policy which works any dissatisfaction even though it is a good policy, can be maintained with any reasonable degree of preplanning or permanence a quadrennial upheaval may change all arrangements which have been made by injecting into the administration a new personnel with fresh ideas

Agreeing that the panel plan recommended by the American Medical Association committee is the most feasible for use and the least undesirable I doubt if good men in sufficient numbers could be found to serve as referees, to check up the work of the medical profession on points of judgment, inability for work inadvisability of working, etc I cannot conceive of men capable of passing those nice judgments, men whose intelligence and integrity the profession could respect, belittling themselves to the point of resigning practices to take up work of this class for the benefit of an employer who paid them a clerk s salary Men of sufficient caliber to be capable of such work would invariably be too big to need it and too free to want it, while men willing to accept the jobs would invariably be of too small caliber to be of trustworthy judgment, because our territory differs from that of England and the European countries In England men could accept the act and work under it or they could starve for there was no other place to work In the United States, for many years to come, men unwilling to empanel have the option of leaving the industrial centers to work in country communities where only a negligible proportion of the population would fall under insurance classification Good men could feel confident of doing well in choosing to emulate Aesop's hungry wolf On the other hand, mediocre men who had been unable to build up satisfactory practices in country territories could come to the industrial centers, empanel, and be granted a regular amount of work and three meals a day, to their own betterment and to the detriment of the insurance workings

While these insurance plans were being evolved in Europe, little was being done in the way of preventive medicine

Had our present-day knowledge of public health and sanitation been available and in general effective use, there is question that paternalistic governments would ever have attempted so fantastic a scheme as that of acting as financial fathers to their entire population

The trend of opinion among American writers is that health insurance is inevitably coming and that we should adjust our affairs to it by entering now into petty bickerings and bargainings over the details of its arrangement If it were a proved blessing I should agree with this view, even though it reduced medical men to the class of salaried workers and members of a trade union, but it is not proved None of the European plans has shown a greater humanitarian or economic improvement than could very probably be attained by the employment of the sanitary methods and instruction with which present-day knowledge is enabling them to handle their armies were these methods applied to civilian population, accompanied by government money and government compulsion in amounts equivalent to those which have been expended annually on the older idea

I should like to see the Council on Health and Public Instruction of the American Medical Association and the committees of all state societies offer programs as a substitute for social insurance activities, and work in such fashion that laymen, the press and our legislative bodies understood the reasons therefor I believe that all would have great cause to be satisfied with the increased economic output as compared with the results of the older method which has been heralded as new

W D Chapman, M D, Silvis, Ill

Mouth Sepsis

To the Editor —Considerable attention has been bestowed on oral sepsis as an essential etiologic factor in systemic infections, and there is reliable scientific evidence in support of the tooth-root theory of this large class of diseases The fact that chronic septic foci in teeth and elsewhere are exceedingly difficult to recognize in the majority of cases is undoubted It is particularly instances of periapical infection or abscess that offer the greatest difficulty in this respect Here, even a Roentgen examination which should always be made by an expert, may fail to render reliable aid

Daland states that the diagnosis of mouth sepsis should be made by a dentist who is specially trained for this, in which opinion I concur The physician, however, who encounters a case of systemic infection in which the teeth are suspected should refer the patient to a competent nose and throat specialist with a view to eliminating all foci other than those which may be present in the mouth before invoking the services of the specially trained dentist It sometimes happens that multiple foci are discoverable in as many different organs, as the teeth, tonsils and sinuses

Successful treatment of secondary systemic infection demands, first and foremost, the removal of the septic focus or foci on which they depend Before reducing the masticating surface of a particular patient however, the evidences of an existing necessity for so doing should be as clear and convincing as possible An attempt by a competent dentist should be made to heal the morbid lesions in and about the tooth roots, since some of these are amenable to expert management, before ordering the extraction of the teeth

Within the past six months a number of dentists have informed me that countless teeth are being removed without justification, on the advice of physicians, usually following a Roentgen examination (by amateurs in many instances) In well authenticated cases in which one or two teeth were the seat of peripheral infection physicians have gone so far as to give emphatic directions to the effect that all of the remaining teeth be extracted For example, one of Philadelphia's best known specialists in extraction was requested by a physician to pull out all of a certain patient s teeth—twenty—but he courteously, though firmly, declined to do so

It seems to me that the rapidly growing custom of sacrificing teeth, many of which are merely suspected of being septic, cannot fail to arouse the most ardent activity of dentists in opposition thereto, and must prove the ultimate chagrin of the medical profession It would appear that an amazingly low estimate is being placed on the value of human teeth by an increasing number of physicians, who should appreciate the importance of a good masticating apparatus to the digestive function—to the maintenance of health

I do not mean to disparage the significance of these latent chronic septic foci as a cause of secondary systemic infections or to depreciate investigations in this, comparatively speaking new field of endeavor The object of this letter is to utter a word of warning with a view to lessening what I believe to be an unwarrantable present-day sacrifice of the masticating surface, and to spare the medical profession the adverse criticism of the future, by a broader conception proper to the subject of oral sepsis and its management in the present

J M Anders, M D, Philadelphia

1605 Walnut Street

Request for Names of Hospitals Facing Public Parks

To the Editor —I would appreciate the receipt from readers of The Journal of the names and addresses of hospitals facing public parks I wish the information to present to our city council, which is considering an ordinance prohibiting the building of a hospital within 200 feet of a public park

M M Enos M D Delger Building Oakland, Calif

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request

ELIMINATION OF DIPHTHERIA BACILLI IN DISCHARGING EAR

To the Editor —I am writing to know if you may be able to suggest anything relative to the subjoined case

P L boy aged about 2½ years, contracted scarlet fever which ran the usual course At no time was there an unusual sore throat and there was never any membrane of the tonsil The small amount of throat trouble cleared up in a few days

About the second week of the child's illness the mother who was attending him and doing her work, developed diphtheria Ten thousand units of antitoxin were used on the mother and 1,000 on the child as a preventive, and a trained nurse was employed There was no reaction to the antitoxin in the child The mother made an uninterrupted recovery Shortly after the mother had contracted diphtheria, the child developed a discharging ear When the time came for the lifting of the quarantine *a culture was made* from the discharge of the child's ear and the diphtheria bacillus was discovered The culture from the mother's throat was negative Repeated cultures from the child's ear have shown the germ to be present and finally a laboratory test was made with the guinea pig to see if the germs were virulent The pig died in thirty six hours and the diphtheria bacillus was found in the pig

As stated before the child is apparently well otherwise and is regaining his strength and gaining in flesh What am I going to do to get rid of this germ? Everything that I have used has been of no avail and I have not found anything in my available literature to help me

W B Wallace M D Detroit

Answer —This case emphasizes the necessity of making cultures from all discharging ears, since virulent diphtheria bacilli are found in the ears much more often than is generally supposed The failure to get rid of the bacilli is probably due to local conditions which prevent antiseptic or germicidal agents from reaching the focus of the bacilli Examination of the ear should determine whether the drainage is free and whether the perforation in the drum head is too small or so situated that free drainage is not secured Any such unfavorable conditions should be corrected by the aurist As in the nose and throat so also in the ear, persistent carriage of diphtheria bacilli is usually dependent on some local condition which must be corrected to facilitate the elimination of the bacilli

HYDRORRHEA GRAVIDARUM

To the Editor —A woman aged 32 secundipara who had a miscarriage about six months ago whose present temperature is normal the pulse 68 and who has had no menstruation since Oct 5 1916, while going about her housework Jan 12, 1917, passed a quantity of fluid which she believed to be a rupture of the 'bag of waters' For about two hours she experienced sharp pains in the lower abdomen of the nature of labor pains January 13 I made bimanual examination and found the uterus enlarged to about the size of a three months pregnancy but the organ was hard like a normal uterus The pains have ceased entirely There has at no time been any sign of hemorrhage Could this be hydrorrhea gravidarum? What is the proper method of procedure on the supposition of pregnancy? I have maintained that curettage would be proper Please advise Would you not expect to find the uterus soft and patulous if this were a pregnancy? Please do not publish signature F S D

Answer —The escape of fluid from the urogenital tract during pregnancy may be due to incontinence of urine, hydrorrhea decidualis or hydrorrhea amnialis In this case it is possible that the cause is a hydrorrhea decidualis, that is, a collection of fluid is formed between the decidua vera and the egg, perhaps as a decidual cyst, which eventually is discharged through the cervical canal The hydrorrhea amnialis, due to rupture of the membranes probably high up in the uterus, is generally attended with slight bleeding The firm consistency of the uterus found on examination was probably due to its contraction at the time of the examination Whatever the cause of the discharge, the proper treatment is prophylactic treatment for abortion, that is, rest in bed and, if necessary, opiates The chance for the continuance of gestation is better in hydrorrhea decidualis, although even if the discharge is from the liquor amnii the rent in the membrane may close and pregnancy may continue

CERTIFIED MILK

To the Editor —Please advise me as to the requirements necessary to establish a certified milk business I particularly desire to know whether a local certified milk organization would have to be connected with another certified milk organization or would have to get permission to use the trademark of certified milk

W G Bain M D, Springfield, Ill

Answer —To establish a certified milk business, a dairyman must be willing to cooperate with a medical milk commission and fulfil its specifications The local medical milk commission need not be connected with any other certified milk organization It would be advisable, however, to limit the term certified milk" to milk produced in accordance with the requirements of the American Association of Medical Milk Commissions These requirements may be obtained by consulting the annual reports of the association, and also Public Health Report 85 published May 1 1912 The secretary of the American Association of Medical Milk Commissions is Otto P Geier, M D, Ortiz Building, Cincinnati

SUBSTANCES INTERFERING WITH REACTION FOR SUGAR

To the Editor —What substance or substances in the urine which fail to reduce Fehling's solution are fermented by yeast? I recently examined the urine of a supposed diabetic Fehling's test was negative acetone and diacetic acid were present in great excess and the fermentation test showed 1 6 per cent of sugar (if sugar it was) That the Fehling's solution had not deteriorated was shown by the fact that on the same day it reacted promptly to a specimen shown by the fermentation test to contain 1 2 per cent of sugar H B

Answer —For practical purposes there is no substance in the urine fermented by yeast that does not reduce Fehling's solution, provided proper technic is employed The reducing action of glucose, or other sugars is diminished by strong alkali Furthermore the urine contains some compounds which interfere with the detection of glucose with strongly alkaline solutions In addition urine contains certain substances which prohibit the immediate precipitation of the cuprous hydroxid or oxid Care must be exercised that the concentration of the alkaline cupric tartrate and the sugar is relatively low

CHVOSTEK'S SIGN

To the Editor —In The Journal Jan 13 1917 p 157 appears an abstract on the facialis phenomenon or Chvostek's sign Will you kindly inform me how to elicit this sign?

Edwin A Tuits M D Arkansas City, Kan

Answer —Chvostek's sign is a peculiar excitability of the muscles of the face so that spasms are produced if the trunks of the facial nerve are lightly percussed This occurs particularly in tetany, occurring in this condition even if the skin is lightly stroked

Food Requirement and Food Consumption —The discrepancies which are so frequently to be observed between food requirement and food consumption may be explained as due in part to present lack of adjustment to recent and enormous changes in environment and human activities and in the nature of foods It seems quite possible that adaptation of diet to the activities of the organism, and other important hygienic measures, may come about, not simply through the slowly accomplished downfall of degenerate classes and nations, which history has so often shown us—for neither the rich fruits of shrewd business capacity nor the activities of the altruistic can ultimately shelter physical degeneration—but through the further discovery of the principles of scientific management of the human organism, and through the apprehension of these by the enlightened classes and the consequent practice of them by the world's population —Minna C Denton, *Scientific Monthly* December, 1916

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Connecticut Regular New Haven March 13 14 Sec, Dr Charles A Tuttle 196 York St New Haven

Connecticut Homeo New Haven March 13 Sec Dr Edwin C M Hall, 82 Grand Ave New Haven

Connecticut Eclectic New Haven March 6 Sec, Dr T S Hodge 19 Main St, Torrington

Illinois Chicago Feb 21 23 Sec Dr C St Clair Drake Capitol Bldg Springfield

Maine Portland March 13 14 Sec Dr Frank W Searle 776 Congress St, Portland

Massachusetts Boston March 13 15 Sec Dr Walter P Bowers Room 501 No 1 Beacon St, Boston

Missouri St Louis March 26 28 Sec Dr J A B Adcock 325 E High St Jefferson City

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New York June Report

Mr H H Horner, Chief, Examinations Division of the New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse June 27-30, 1916 The total number of subjects examined in was 8, total number of questions asked 80, percentage required to pass 75 The total number of candidates examined was 366, of whom 302 passed, including 7 osteopaths, and 64 failed including 6 osteopaths The following colleges were represented

College	Year Grad	Total No Licensed
PASSED		
Georgetown University	(1916)	1
George Washington University	(1911)	1
Northwestern University	(1896)	1
College of Physicians and Surgeons Baltimore	(1913) (1914)	2
Johns Hopkins University	(1911) (1912) (1916 2)	4
University of Maryland	(1914)	1
Boston University	(1916)	2
Harvard University	(1915) (1916 7)	8
Albany Medical College	(1915) (1916 31)	32
Columbia University	(1912) (1915 6) (1916 21)	28
Cornell University	(1916)	16
Fordham University	(1915) (1916 13)	14
Long Island College Hospital	(1916)	69
New York Homeopathic Medical College and Flower Hospital	(1914) (1915 4) (1916 12)	17
New York Medical College and Hospital for Women	(1916)	6
Syracuse University	(1913) (1916 17)	18
University and Bellevue Hospital Medical College	(1914) (1915 3) (1916 23)	27
University of Buffalo	(1916)	31
Eclectic Medical College	(1916)	1
Medical College of Ohio	(1900)	1
Jefferson Med College of Philadelphia	(1914) (1915) (1916 6)	8
Medico Chirurgical College of Philadelphia	(1916)	1
Vanderbilt University	(1914)	1
University of Texas	(1915)	1
University of Vermont	(1915)	1
Medical College of Virginia	(1915) (1916)	2
University of Naples	(1894)	1
FAILED		
University of Alabama	(1915)	1
Rush Medical College	(1899) (1916)	2
University of Louisville	(1912)	1
College of Physicians and Surgeons Baltimore	(1914)	1
Johns Hopkins University	(1916)	1
University of Maryland	(1916)	2
Harvard University	(1916)	1
Tufts College	(1915)	1
Albany Medical College	(1910) (1915) (1916)	3
Columbia University	(1914) (1915) (1916 2)	4
Fordham University	(1912) (1913) (1914) (1916 4)	7
Long Island College Hospital	(1916)	1
New York Homeopathic Medical College and Flower Hospital	(1913) (1914) (1915 2) (1916 6)	10
New York Medical College and Hospital for Women	(1916)	5
University and Bellevue Hospital Medical College	(1916)	2
University of Buffalo	(1916)	2
Jefferson Medical College of Philadelphia	(1902) (1915)	2
Medico Chirurgical College of Philadelphia	(1915)	1
Woman s Medical College of Pennsylvania	(1915) (1916)	2
Medical College of Virginia	(1914) (1916)	2
Queen s University	(1915)	1
McGill University	(1900)	1
University of Brussels	(1913)	1
National University Athens	(1887)	1
University of Catania Italy	(1912)	1
University of Naples	(1896)	1
Medico Chirurgical Institute Stockholm	(1879)	1

Missouri September Report

Dr J A B Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at Kansas City, Sept. 18 19, 1916 The total number of subjects examined in was 14, total number of questions asked, 100, percentage required to pass, 75 The total number of candidates examined was 22, of whom 18 passed and 4 failed Four candidates were granted reregistration licenses by examination The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Howard University	(1915)	82
Georgia College of Eclectic Medicine and Surgery	(1914)	83
Loyola University	(1916)	78
Rush Medical College	(1916)	82
University of Illinois	(1916)	82
Tulane University of Louisiana	(1916)	84
Harvard University	(1916)	86
Ensworth Medical College	(1909)	79
Kansas City Hahnemann Med Coll	(1907)	77
Kansas City Medical College	(1899)	75
National University of Arts and Sciences	(1916) 75	77
John A Creighton Medical College	(1916)	75
New York Homeo Med Coll and Flower Hosp	(1910)	85
Western Reserve University	(1914)	86
Jefferson Medical College of Philadelphia	(1916)	91
Meharry Medical College	(1916)	90
University of Nashville	(1901)	88
FAILED		
Chicago College of Medicine and Surgery	(1914) 73 (1916)	*
National University of Arts and Sciences	(1916)	74
St Louis College of Phys and Surgs	(1910)	71

* No grade given

California October Report

Dr Charles B Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the oral and written examination held at Los Angeles Oct 2-6, 1916 The total number of subjects examined in was 9, total number of questions asked 90, percentage required to pass 75 The total number of candidates examined was 51, of whom 37 passed, including 12 osteopaths, and 14 failed, including 8 osteopaths Thirty-nine candidates were licensed through reciprocity Four candidates were granted drugless practitioner's license and 3 chiropodist's license The following colleges were represented

College	Year Grad	Per Cent
PASSED		
California Eclectic Medical College	(1916) 78 4	83 2
College of Medical Evangelists	(1916) 81 9	84 2
College of Physicians and Surgeons Los Angeles	(1915) 91 4 (1916)	81 8 82 1 87 9 90 4 94
Hahnemann Medical College of the Pacific	(1916)	86 4
University of Colorado	(1914)	75 7
George Washington University	(1916)	82 4
Rush Medical College	(1915) 90 1 (1916)	89 9
Harvard University	(1912)	96 3
University of Michigan Homeopathic Medical School	(1912)	84
Eclectic Medical College	(1913) 91 4 (1916)	81 3
University of Oregon	(1916)	88
Jefferson Medical College of Philadelphia	(1916)	89
University of Virginia	(1907)	93
University of Heidelberg Germany	(1898)	84 9
National School of Medicine Mexico	(1899)	78 3
McGill University	(1912)	93
FAILED		
California Eclectic Medical College	(1915)	73 1
Hahnemann Med Coll of the Pacific	(1916)	70 3
St Louis College of Physicians and Surgeons	(1907)	53 6
John A Creighton Medical College	(1913)	63 3
Laval University	(1911)	25 7
Kyoto Imperial University Japan	(1910)	61 3

College	Year Grad	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Alabama	(1911)	Arizona
College of Physicians and Surgeons Los Angeles	(1905)	Arizona
Denver College of Physicians and Surgeons	(1909)	Colorado
Yale University	(1911)	Mass
Georgetown University	(1912)	New York
Southern Medical College	(1891)	Texas
Chicago Homeopathic Medical College	(1888)	Missouri
Coll of Phys and Surgs Chicago (1890) Colorado	(1907)	Illinois
Northwestern University	(1901)	Illinois
Rush Medical College (1889) Iowa (1896) (1899) Utah (1901) Minnesota (1900) (1911) (1914)	(1915)	Illinois
Medical College of Indiana	(1882)	Indiana
Keokuk Medical College College of Physicians and Surgeons	(1901)	S Dakota
College of Physicians and Surgeons Kansas City	(1897)	Wisconsin
University of Louisville	(1910)	Michigan
Johns Hopkins University	(1910)	Washington
Harvard University	(1884)	Penna
University of Michigan Homeo Med School	(1907)	Penna
Eclectic Medical University	(1912)	Arkansas
Marion Sims Beaumont Medical College	(1902)	Arizona
Columbia University	(1891)	Washington
N Y Homeopathic Med College and Flower Hospital	(1913)	New York
University of Buffalo	(1912)	New York
Eclectic Medical College (1889) Missouri	(1894)	Kentucky
Medical College of Ohio	(1882)	Wisconsin
Jefferson Medical College of Philadelphia	(1913)	Washington
University of Pennsylvania (1873) Michigan	(1914)	Penna
University of Pittsburgh	(1909)	Penna
University of Ghent Belgium	(1888)	New Jersey
McGill University	(1908)	Idaho

Book Notices

On Modern Methods of Treating Fractures By Ernest W Hey Groves, M S M D, B Sc, Surgeon to the Bristol General Hospital Cloth Price $2 75 net Pp 286 with 136 illustrations New York William Wood & Co, 1916

In this small volume the author tries to choose that which he considers best in the modern developments of the treatment of fractures, and substantiates it wherever possible by extensive experimental work He assails separately the principles of the "classical school, which aims at setting the bone, prolonged immobilization and fixation of the neighboring joints leaving the soft parts to take care of themselves In their stead he advocates the intelligent employment of the modified methods of Bardenheuer on continuous extension of Lucas-Championniere on early massage and motion, and of Lane on open operation Causes for bad results in the various types of fractures treated by different methods are discussed A special chapter is devoted to the various types of external extension appliances, as Buck's extension Bardenheuer's extension methods the Balkan splint Hodgen's splint, and the crutch splint of Borchgrevink for fractures of the humerus Mechanical modifications of these external methods are detailed, as the Steinmann nail extension, and double transfixion apparatus of Lambert and Groves About 100 animal experiments are given, showing the relative values of a great many operative methods of fixation of the fragments as plates and screws, plates and cotter pins, and intramedullary pegs of bone living and dead, ivory, horn, metallic magnesium and steel There is considerable comment on bone regeneration and the healing of comminuted fractures The work is concluded with a chapter on the operative treatment of special fractures, giving the author's results

Diseases of Occupation and Vocational Hygiene Edited by George M Kober, M D LL D and William C Hanson M D Cloth Price $8 net Pp 918, with illustrations Philadelphia P Blakiston's Son & Co 1916

This work deals with a multitude of subjects which should be of vital interest to a variety of people, the physician the employer, the worker and last but by no means least, the legislator For the physician especially, it contains information concerning the diseases which are caused or aggravated by the different kinds of employment Although the various articles are from the pens of different writers, they show a commendable tendency to stick closely to known facts The chapter on 'Cancer and Occupation' is an example of this The more important theories of the etiology of cancer are discussed in an unbiased manner

The conclusions reached may be briefly summarized as follows Concerning a specific infection, 'Repeated attempts to isolate such an agent from mammalian tumors have invariably failed' the question of contagion 'has never been demonstrated' concerning heredity 'while the data collected up to the present time from animal experimentation are insufficient to serve as a basis for any sweeping conclusions concerning human inheritance we are of the opinion that the results already obtained are sufficient to call for a reconsideration of the subject of heredity with reference to cancer", concerning injury, the principal cause would appear to lie in the peculiarity of the individual, for trauma is of so great frequency that it cannot in any sense be regarded as the specific cause of any type of tumor", in regard to chronic inflammation as a basis for cancer, 'there are agents to which all individuals are exposed to a greater or less degree that are mildly injurious The undue or prolonged exposure of the skin to such agents evidently has a tendency to bring on a premature senility of its tissues especially in certain individuals Since however most of the tumors of this type are of comparatively slight malignancy such influences are not of first importance' No very marked preponderance of cancer in any of the more usual occupations is shown by Newsholme's Statistics" The effect of Roentgen ray in this connection is recognized but 'there are as yet no reported cases of carcinoma arising from radium burns" However the similarity between Roentgen ray and radium should warn against the indiscriminate or careless use of this agent It is perfectly evident from the above that the real cause of cancer is not yet known, nor can cancer be directly connected in a causal way to any particular occupation

The work was written for laymen as well as physicians and many employers might derive much profit in the way of better and more efficient work by their employees if more attention were given to better hygienic conditions in the shop factory, etc, but there seems to be few of them who are longheaded enough to see that far Not the least among those who might derive much benefit from the careful study of this work are legislators In this day of legislative mania, when quantity seems to be a greater desideratum than quality, much half baked and even unbaked legislation is being passed, particularly along the line of so called health laws

Disturbances of the Heart Discussion of the Treatment of the Heart in Its Various Disorders, with a Chapter on Blood Pressure By Oliver T Osborne A M M D, Professor of Therapeutics, Yale Medical School Second Edition Cloth Price, 75 cents Pp 269 Chicago The Journal of the American Medical Association 1916

Safe and sane guides to therapeusis are particularly needed in diseases of the heart and blood vessels which occur frequently and in which much can be accomplished for the patient by rational measures Osborne presents a concise description of the methods of treatment indicated in these diseases In the chapters on blood pressure, proportionately more full than those dealing with other cardiac disturbances, the methods of determining pressures are discussed, together with the significance of high and low pressures, as related to the heart itself and as indexes of the presence of concomitant conditions Chapters on pericarditis, myocardial disturbances, endocarditis and chronic valvular disease follow Heart disease in children and in pregnancy are discussed, as are also the problems of therapy arising in cardiorenal disease Abnormalities of rhythm and rate are considered in the light of recent studies with the electrocardiograph The section on the indications for therapy in angina pectoris and heart block are brief but to the point The importance of chronic infections as a cause of the pain in pseudo-angina might profitably have received more emphasis As a concise statement of what to do and what can be accomplished in the treatment of disturbances of the heart and blood vessels, this manual can be heartily recommended to all practitioners of medicine

Manual of the Medical Department United States Army Cloth Pp 395 War Department Document No 504 Washington Government Printing Office 1916

This manual, prepared under the supervision of a board consisting of Lieut-Col Henry C Fisher and Majors Elbert E Persons and Reuben W Miller, Medical Corps, presents many features which offer opportunities for efficiency not found in previous manuals As it now appears, the manual is a complete treatise on medicomilitary administration, so arranged that even the neophyte may read and understand it Instead of including all the information bearing on military administration which is to be found in the army regulations general orders and service manuals, which should be in the hands of all medical officers, the manual contains an appendix which refers by subject headings, to the more important orders containing matters of interest to medical officers If the manual and appendix were printed on loose leaves and assembled after the method of the U S Navy Regulations it would be possible to print changes in regulations on loose leaves which could be inserted This would avoid the haphazard method, at present necessary, of clipping orders and circulars and pasting them in the manual, to the eventual detriment of the binding by reason of bulk Many sections of the manual have been rewritten, new articles have been added, and all matter has been brought up to date One aid to the student of the manual is the introduction of subject running heads on the right hand pages

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More Hospitals—The greatest need of practical medicine today is more and better equipped hospitals—V C Vaughan, M D, *Science*, Dec 8, 1916

Social Medicine, Medical Economics and Miscellany

Fatal Case of Periodic Vomiting with Acetonemia in a Child

A case reported recently by P Busacchi in a boy of 4 had all the features of this syndrome except that the attacks came on without any vomiting The prostration each time was severe, with coma and fever and the acetone odor of the breath was intense while the urine contained notable amounts Another child had repeated attacks, but only one was known to be accompanied by vomiting He suggests, therefore that the syndrome had better be called hemo acidosis of the cyclic or acyclic type, with convulsions or depression as the case may be In a recent case a boy of 6 previously robust was taken suddenly with severe vomiting and high fever and he became unconscious with erythema of the face and trunk convulsions and coma dying within twenty-four hours The odor of acetone was strong in the breath and urine throughout and the Kernig sign was pronounced Nothing was found in the vomit or stools to suggest poisoning from without The necropsy findings excluded meningitis and other probable causes, the syndrome being thus evidently the work of hemoacidosis of the convulsion type The thymus and lymph glands were enlarged Busacchi knows of only eleven cases on record with a fatal outcome, and only a few had necropsy control His little patient had never shown signs of a nervous predisposition and nothing was found to indicate acute or chronic indigestion or appendicitis, but a sister of 9 had presented two similar severe attacks The mother had died at 39 She had been subject to headache and arthralgia In connection with a possible gouty basis for the trouble Busacchi relates that the urine in the first case mentioned above contained a large number of uric acid crystals during the days following an attack Comby regards the syndrome as an equivalent for the manifestations of the exudative diathesis In Busacchi s fatal case the viscera had evidently suffered recently and severely from the acidosis, the changes in the kidneys being enough to explain the fatal outcome In his report, which appeared in the *Rivista Critica di Clinica Medica,* 1916, **17,** 473, he discusses the pathogenesis and reviews the literature on the subject The fatty metamorphosis found in the liver is, he thinks, merely secondary, as the children always seemed well and strong outside of the attacks

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Nature of Gout

R Bass and R Herzberg have recently published some researches in this line, according to a summary of their work in the *Norsk Magazin for Lægevidenskaben* They recall that the variations in the output of uric acid in gout—'uric arthritis"—may depend on the secreting power of the kidneys so that it is necessary to determine the uric acid content of the blood in estimating the case But this examination of the blood generally does not take place until the attack of gout is fully developed By that time the diet has already been changed in order to arrest the attack This change to a purin-free diet rapidly reduces the uric acid content of the blood, whether or not there has been a preceding attack of gout In order to study the influence of an attack on the uric acid content of the blood, it would therefore be necessary to refrain from reducing the purin elements of the diet during and after the attack, or else the conditions would have to be studied in a patient having an attack on a strictly purin-free diet The influence of drugs must also be excluded Three patients were put on a purin-free diet during an attack, and the uric acid in 100 c c of blood dropped from 7 2 to 5 from 5 5 to 4 and from 4 3 to 2 7 mg In two others who had been on a purin-free diet before the attack, the uric acid in the blood kept at exactly the same figure during the attack, and when reexamined one and three weeks later namely, 5 and 3 2 mg Other patients were on a purin-containing diet both during and after the attack and these had approximately the same figures for the uricacidemia during and after the attack, in only one case was there a difference amounting to 0 4 mg Spontaneous attacks of gout can thus develop and subside without modifying the uric acid content of the blood

Experience has shown however, that ingestion of large amounts of purin-producing foods can bring on an attack of gout at the same time that the uric acid content of the blood increases In order to ascertain whether it is the uric acid which works on the joints, Bass and Herzberg injected intravenously considerable amounts of sodium urate, up to 1 8 gm of uric acid in 100 c c of fluid But this never induced symptoms in the joints even in gouty persons who were extremely subject to attacks and even when the uricemia rose to 10 mg It is probably therefore not the uric acid as such, but other intermediate purin substances which elicit the pains in the joints, such as the nucleosids or purin bases The article of Bass and Herzberg appeared in the *Deutsches Archiv fur klinische Medicin* 1916 **119,** 482 and concludes with the deduction from the foregoing research that uricacidemia cannot be regarded as the specific feature of gout Merely the distribution of the uric acid in the body seems to be the characteristic of gout F Muller calls uric acid an ' arthotropic substance ' but the uric acid content of the blood and of the fluid in the joints proved to be approximately the same in a large number of tests, including some on the cadaver the joints punctured after death None of these subjects had had attacks of gout, but in two patients who had succumbed to uremia, uric acid was found in the joint fluid in a concentration of 18 5 and 20 8 mg, while the blood content was only 10 and 8 2 mg There thus exists in fact an abnormal attraction for uric acid in the joints in gout which does not occur in other affections Persons with gout have evidently an exceptionally high capacity for taking up uric acid in the tissues With intravenous injection of uric acid, the blood content keeps at the same level so long as the kidneys eleminate it properly But in the gouty the uricacidemia is lower, nothwithstanding reduced elimination in the urine More uric acid, therefore must be taken up by the tissues in the gouty than in other patients

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Pregnancy Toxicoses

Our Norwegian exchange brings an abstract of an article on his subject by L Seitz in the *Therapeutische Monatshefte,* 1916 p 173 Seitz advises in treatment of eclampsia a combination of Stroganoff s prophylactic method and venesection to relieve the high blood pressure and get rid of some of the toxins in the blood These measures are supplemented with subcutaneous infusion of Ringer's solution, and the patient is made to drink freely of lemonade The childbirth must be hastened as much as possible with gentle means, avoiding all severe operative intervention (The Stroganoff method was described in THE JOURNAL, Feb 12, 1916, p 530) With pregnancy nephritis the retention of salt and water is best combated by bed rest, and this must be absolutely enforced The kidneys are spared further by avoiding intake of salt keeping to milk alone As a rule under these measures the nephritis subsides entirely, so that the pregnancy can go on to term In only a very few cases is it found necessary to interrupt it Generally speaking, the nephritis which develops acutely with sudden and pronounced edema and albuminuria is the most dangerous Seitz combats pregnancy dermatoses with a milk-vegetable diet, bed rest and subcutaneous injection of Ringer s solution If this does not cure, he tries injection of horse serum or 20 c c of serum from a normal pregnant woman Rest and dieting are the main things An essential element in the treatment of the incoercible vomiting of pregnancy is the removal of the patient from her wonted surroundings The first one, two or three days after she reaches the clinic she is allowed nothing whatever by the mouth, but saline is given by the rectum by the drip method eventually with addition of potassium bromid R Freund has also found injection of serum gives good results Only a few cases prove intractable. These refractory cases are more of a toxic than of a nervous character, and the uterus will have to be evacuated Dryness of the tongue, offensive breath, bad pulse, albuminuria and especially a rise in temperature call for the arrest of the pregnancy without delay

Medicolegal

Validity of Regulations Bearing on Transportation of Milk into City

(City of Chicago vs. C. & N. W. Ry. Co. (Ill.) 113 N. E. R. 849)

The Supreme Court of Illinois reverses a judgment imposing a fine of $100 on the defendant for delivering in the city of Chicago Aug. 21, 1914, milk at a temperature of from 67 to 76, or higher than 55 F., the milk having been brought to the city in baggage cars having no refrigerating facilities, the trip taking in the neighborhood of two hours. The city charged violation of an ordinance covering in detail practically all matters regarding the supervision of the production, handling and delivery of milk to be sold within the city—not only its treatment in the city, but on the farm from whence it is shipped, including the straining and cooling of the milk immediately after the cows are milked and the temperature at which it shall be kept from that time until it is delivered to the consumers in Chicago. The court says that counsel for the defendant admitted that a municipality has the power to regulate what kind of milk shall be sold within its limits, and that such rules and regulations may indirectly affect the production of the milk on the farms outside the city limits, and that it may thus apply regulations that will in effect require milk to be cooled immediately after it is taken from the cow and to be kept cool until transported to the city for delivery. This is undoubtedly the law. This court, in construing certain provisions of this ordinance with reference to the regulations for pasteurizing milk, upheld the validity of the ordinance in that respect, and, in effect, held regulations such as are before the court in this case valid provided they are reasonable and are adapted to the objects sought to be attained. The court thinks that, under any fair construction, the ordinance was intended to apply to common carriers in the transportation of milk from the country to the city; otherwise it would be ineffective. The object sought to be obtained would be absolutely defeated if common carriers, in the transportation of milk from the country to the city, were not required to keep it cool in transit. The court does not agree with the contention that as common carriers ordinarily must accept all freight tendered therefore they would not be justified in refusing to receive cans of milk even though they were not within the limitations of temperature required by this ordinance. The common carrier should not be permitted to be the one agency of those handling milk between the time it is milked and the time it reaches the consumer to defeat the purposes of a reasonable health ordinance on that subject. But it was contended that the ordinance here in question, if intended to apply to common carriers, was invalid, being unreasonable in its method of regulation, that other provisions of the ordinance require that cans of milk be sealed before they are shipped and that the seals shall remain unbroken during transportation by the carrier, and that the carrier therefore cannot ascertain the temperature of the milk at the time it is shipped. And the court suggests that on the record before it, it must be held that the provision here in question of this ordinance, so far as it applies to common carriers, is unreasonable and void, though it suggests further that, after the case is sent back to the trial court, if it can be, more proof be presented to show that the ordinance is reasonable on all the questions involved. Notwithstanding divers scientific theories, on subjects of this nature the courts usually defer to the determination and decisions of the proper authorities as to the basis of police regulations, unless such basis is manifestly erroneous. The court realizes how important the question under consideration is to the health of the people of Chicago and the state at large, and it has no hesitation in reaffirming the rules heretofore laid down by it with reference to the right of the authorities of the city of Chicago to make all proper and reasonable regulations with reference to the care, transportation, sale and delivery of milk in order to protect and promote the health of the people—especially the children—of that city.

Guarding Against Typhoid Fever—May Require Blood Test of Milk Dealers

(People ex rel. Schulz vs. Hamilton et al. (N. Y.), 161 N. Y. Supp. 425)

The Supreme Court of New York, special term, Monroe County, per Justice Rodenbeck, denied an application for a writ of mandamus to the commissioner of public safety of the city of Rochester and others to compel the issuance of a license to the relator to sell milk, after he had refused to submit to a blood test to determine whether or not he had typhoid fever and was a carrier of typhoid germs. The court says that the condition of the public health of the city at the time with respect to typhoid fever was not abnormal, and still the requirement of a blood test as a condition for a license to sell milk and cream seemed to be a fair and reasonable precaution, to protect the public against any increase of typhoid. Milk is a peculiarly sensitive product, produced under conditions which, if not regulated and controlled, may carry and disseminate the germs of typhoid or other diseases and spread them in the community. It is the chief food of infants, and lies at the basis of their health and strength. It may be heated, sterilized or pasteurized, but even then contact with unclean utensils or unclean human beings may make it the carrier of disease germs. Unlike other articles of food, it cannot be washed and otherwise cleansed in the home. The impurities may be hidden from sight, and thus a sense of security engendered which may render it a still more serious menace to health. Under these conditions it would seem to impose no unreasonable hardship on a dealer in milk or cream to require him to submit to a blood test, to make sure that he has not had typhoid and is not a typhoid carrier. That typhoid fever is a contagious disease and may be transmitted by one afflicted with the disease is a matter of common knowledge, and the court will take notice of that fact without proof. The court will also take notice of the fact that an examination of a drop of blood will reveal whether or not the person from whom it has been taken has had typhoid. This may not be universally held by scientific men or universally believed by the people, but, until science disproves the value of the test, it will be accepted by the courts as true. The imposition of this test with respect to this particular occupation, and the requirement of this and any other test in any other occupation which may affect the public health rests in the sound discretion of the state or local authorities in whom the discretion to pass on the subject has been vested. This rule does not infringe on the civil rights of the individual. Government has been instituted among men for their mutual protection, and no man has the right to make himself or his business a menace to the public health. It is important to the whole community that the supply of milk and cream should be kept clean, pure and wholesome and should not be contaminated with impurities, or infected with disease, and it is the duty of the health authorities to see that this is accomplished by the establishment of such reasonable regulations as may be necessary to meet existing conditions or to ward off impending dangers to the public health, and in imposing a blood test as a condition to a license to sell milk and cream in the city, the commissioner of public safety and the health officer acted within the scope of their authority, and applicants for such a license should cooperate with the public authorities, and assist, rather than oppose, reasonable efforts to provide pure and wholesome milk and cream for the people of the city. The requirement of a blood test of an applicant for a license is just a step, and a small one, in the direction of the protection of the public health, but every reasonable effort made in this direction should be encouraged, so long as it does not unreasonably infringe on the rights of the individual. The court holds, too, that the health authorities of the city are not required to wait until an epidemic of typhoid has broken out before taking precautions against it, but in the exercise of a reasonable judgment may anticipate such a condition, and may and should make all reasonable efforts to perform the duty imposed on them by statute and to take all reasonable precautions to protect the public health before the emergency arises.

Society Proceedings

COMING MEETINGS

Am. Assn. of Pathologists and Bacteriologists, New York, April 6-7
Missouri Valley Medical Society, Keokuk, Ia., March 22-23
Western Roentgen Society, Hotel Sherman, Chicago, Feb. 16-17

ANNUAL CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

THIRTEENTH ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 5, 1917

Dr. Arthur Dean Bevan, Chicago, in the Chair

Progress of the Year in Medical Education

Dr. N. P. Colwell, Chicago: The requirement of two years of college work for admission to medical colleges is reasonable, and the action taken by the House of Delegates last June in making that standard a requisite for the Class A rating was not drastic. This is indicated by the fact that at that time fifty-one medical colleges and sixteen licensing boards had already adopted that standard. At present sixty-five medical schools and nineteen state licensing boards have adopted two years of college work as the minimum standard of preliminary education.

A clause in the recommendation adopted by the House of Delegates stated that the colleges of arts and sciences in which the two years of college work were to be obtained should be "approved by the Council on Medical Education." This made it the duty of the Council to prepare a list of approved colleges. The Council has secured lists of those approved by various standardizing agencies such as the Association of American Universities, and the North-Central and Southern Associations of Colleges and Secondary Schools and by leading universities.

The House of Delegates also instructed the Council to cooperate with other educational organizations in an endeavor to save one or two years of the student's time during the course of his preliminary or medical education. For the present session of the medical schools from which reports have been obtained a large majority show increases in the enrolment of students in freshmen classes. Although the total number of medical schools has been reduced by over 40 per cent. in the last twelve years, the number of colleges having improved educational standards has been increased by over 95 per cent. The numbers of medical students and medical graduates from these high standard colleges have been increased in about the same proportion.

One of the most satisfactory accomplishments of the Council has been the development of the medical students' register, which was started in 1910. In that work from the beginning the Council has had the cooperation of a large majority of the medical schools, which have furnished intricate and detailed reports regarding the new students enrolled each session. In addition, the colleges have sent reports from the individual students giving their educational histories up to the time they entered medical school.

Attention was called a year ago to clauses in the medical practice acts of the Canadian provinces of Ontario and Quebec discriminating against medical schools of the United States. Correspondence with officials in Ontario has resulted favorably and the discriminatory clause has been stricken out. With the Province of Quebec, however, the practice act still requires that before a graduate of any medical school in the United States can secure registration in that province he must follow the last year of the medical course in one of the schools of medicine of Quebec.

A year ago attention was called to the lack of safeguards in the chartering of educational institutions in the various states. Correspondence has since been carried on with superintendents of public instruction, presidents of state universities, secretaries of state medical licensing boards and officers of state medical societies calling attention to that need and urging the securing of better legislation. As the correspondence progressed it was ascertained that any legislation regulating the chartering of educational institutions should contain the following provisions: (*a*) restrictions in the use by any person, organization or corporation of the terms "school," "academy," "college" and "university"; (*b*) educational standards which should be met by institutions seeking the right to grant degrees before a charter is issued; (*c*) revocation of the charter of any institution which is found to lack the needed equipment or teachers, which may be found to be using fraudulent methods or which for other reasons is not living up to the standards fixed by the state; (*d*) a state board, commission or other body which would have in charge the regulation of such institutions as have been chartered, and (*e*) ample funds for effectively carrying out the provisions of the law.

The objection to medical cults is their lack of adequate education. Any one having to do with the treatment of human diseases needs to have a sufficiently thorough training to be able to recognize the disease he is attempting to treat; otherwise his treatment is unscientific and as liable to do harm as good. A training in the fundamental sciences is needed, no matter whether drugs are employed or not and no matter what system or method of treatment may be used.

The educational standard adopted in all leading nations as the reasonable minimum standard for practitioners of the healing art includes: (*a*) a secondary school course equivalent to that of the better high schools of this country and in addition the completion of one or two years of work in a college of liberal arts, including courses in physics, chemistry and biology; (*b*) a thorough medical training provided by a four year course in a well equipped medical college including two years in the laboratories of anatomy, physiology, bacteriology, pathology, pharmacology and physiologic chemistry, and two years in clinical instruction in dispensaries and hospitals, and (*c*) the practical experience obtained in a fifth year spent as an intern in a good hospital.

The Problem of Higher Degrees in Medicine

Dr. Horace D. Arnold, Dean Harvard Graduate School of Medicine, Boston: Opportunities for advanced study and research have long been offered by medical schools, yet the problem of higher degrees in medicine has arisen only recently. Degrees for the recognition of advanced scholarship are sanctioned by our best universities and help to establish and maintain high standards of scholarship. Medicine is undoubtedly a proper field of learning in which to grant advanced degrees.

The existing degrees of B.A. and B.S., M.A. and M.S. and Ph.D. are comparatively satisfactory. The curriculum of a professional school is on the same relative level as the collegiate course, in that it properly leads to a baccalaureate degree, e. g., LL.B., B.D. A bachelor who completes such a curriculum should receive a second baccalaureate degree rather than a master's degree or any other higher degree. Medicine is an exception to this rule, as the regular medical course leads to the degree of Doctor of Medicine, instead of Bachelor of Medicine. This custom has become so firmly established in practice that it must be regarded as permanent, and it is not practicable to change from M.D. to M.B. The problem of higher degrees in medicine is complicated, therefore, by the fact that the doctorate degree is conferred after a course properly leading to a bachelor's degree.

In some instances the degree of Doctor of Science, Sc.D., has been utilized, but this is undesirable, since that degree is used much more commonly as an honorary and not as an earned degree. The use of the Sc.D. degree with mention of the professional field, D.S.Med., D.S.Jur., D.S.Theol., D.S.Eng., has been suggested as the best way of recognizing advanced research in the various professions.

As an advanced degree with less exacting requirements, the Master of the Science of Medicine, M.S.Med., is suggested. The Master of Science without designation of field is conferred after the attainment of B.A., B.S. or an equivalent degree, and, therefore, would not be satisfactory after the attainment of the M D

Professional study beyond that corresponding to a master's degree might lead to a practitioner's degree, types of which are found in the engineering profession, such as Civil Engineer and Mechanical Engineer The call for such a degree in medicine is indicated by the recent efforts to establish suitable standards for specialists by the American College of Surgeons the societies in ophthalmology and other societies of specialists

DISCUSSION

Dr Victor C Vaughan Ann Arbor, Mich The multiplication of degrees is something that should be avoided so far as possible There are already too many degrees The Master's degree as a graduate degree in literary colleges is a joke While as a rule it is not a disgrace, it is at least no honor to have it With these postgraduate degrees there is always a tendency to keep the student in the school where he obtained his undergraduate work Some years ago we tried to encourage the migration of students so that a student could spend one year in one college, another year in some other university and so on A man who has had four years as an undergraduate in a medical school, in getting his clinical work should go to other medical schools so as to come in contact with different men Examinations are a necessary evil and I do not see how we can get rid of them They interfere with a man's originality and with his research work They constantly loom up before him as a specter The National Board of Medical Examiners has set a high standard, and the passing of its examination ought to be equivalent probably to the highest medical degree obtainable in this country The board does not want ordinary students, but does want the six or eight best students in every class after they have had a hospital year

Harry Pratt Judson President University of Chicago The multiplying of degrees will not help us much A man should be known by what he has accomplished rather than by the degrees he has obtained One man may be eminent in medicine and another in research work yet both may hold the same degree, they are known by what they do rather than by the degree they hold A simple solution of the problem would be to give the degree of Doctor of Philosophy It does not matter whether a man is a specialist in mathematics or specialist in pathology, it is all the same so far as the degree goes

Dr Horace D Arnold, Boston The Council's chief object is to establish some means of standardizing the best medical men I know of nothing more likely to raise the public estimate of the medical profession than to have it recognized by universities as on the same high plane as the arts and some of the sciences which would be the case if its eminent specialists were granted the degree of Doctor of Philosophy

Dr Arthur Dean Bevan Chicago It is the function of universities to determine this matter, and the Council may give them the point of view of the medical profession The Chair desires to appoint the following special committee to investigate and report on this subject Dr Horace D Arnold, Boston, chairman Dr N P Colwell, Chicago secretary, Dr L B Wilson Rochester Minn, Dr Isadore Dyer New Orleans, Dr John M Dodson Chicago, Dr William Pepper, Philadelphia Dr Victor C Vaughan, Ann Arbor, Mich, Dr J M T Finney Baltimore, Dr Edward Jackson, Denver, and Dr James Ewing New York

Economy of Time in Preliminary and Medical Education

Dr Arthur Dean Bevan Chicago A study of conditions in Germany and England shows that in countries abroad a student goes from the secondary school direct to the medical department of the university in Germany at the age of 19 and in England somewhere between 17 and 20 In this country the requirements of preliminary education have been gradually raised until the accepted American standard is two years of college work including the sciences preliminary to medical education As a result, medical graduates, after completing their hospital intern year, are 28 years of age on the average, whereas in Germany and England the average is from 25 to 26 years

It is not in the interests of national efficiency for us to graduate our men in medicine two years later than is done in England and Germany Men at the younger age are more eager, more plastic, and have greater possibilities of a future than men graduating two, three or four years later This points clearly to the desirability of reorganizing our scheme of education so as to save two or three years of the student's time

A conclusion forced on me has been the little excuse for the four year college course that is sandwiched in between the high school and the university without definite aim or purpose Nothing like this has developed in any other country It has been demonstrated that two years of special technical training in sciences after leaving high school is sufficient for admission to the medical school The investigation made shows that even with this saving of two years of time as compared with the full college course, the length of time required to complete the premedical and medical training is too great by at least two years, and that some rearrangement should be made in the primary school, in the high school or elsewhere, in order to reduce the time required

Economy of Time in Preliminary and Medical Education

Hon P P Claxton, United States Commissioner of Education Washington, D C The high average age at which students begin their medical studies in this country is due to several causes Many students pay their way through high school and college by going to school a year or two and then working one or more years for money with which to pay their school bills Then after graduating from college they may teach one or more years before beginning to study medicine The older age raises considerably the average age of all professional students and graduates

Another important cause is the shortness of the school year The usual length of the school year in American cities is less than 175 days after holidays are counted out, and the length of the average school day is five hours In rural schools the average school year is from ten to seventy days shorter than in cities the average difference being nearly forty days between city and country schools In western European countries, in Canada, Australia New Zealand and Japan, the school year is from 220 to 250 days The principle of short hours for efficiency is no doubt correct in a measure, but we have carried the matter to an extreme, especially as it applies to the school year

Another cause is irregular attendance There are still states without compulsory school attendance laws, and in none of our states or cities are the attendance laws as rigidly enforced as in most European countries The average daily attendance in our schools is not more than 70 per cent of the enrolment, which means that an average of thirty out of a hundred enrolled are out of school daily Then there is the lack of definite education and professional preparation on the part of teachers In the rural schools a large proportion of the teachers are young and inexperienced The average term of service does not exceed probably five years The constant changing of teachers is another cause Children in our schools change teachers so often that all continuity of study and teaching is lost Then there is the lack of definite organization of courses of study, but most of the time lost in American schools is probably through the long drawn out elementary courses running through eight years and continuing two or three years after the beginning of adolescence and the consequent postponement of the time of beginning high school subjects, by the attempt to crowd all secondary work into four years, and by a false policy in college administration which fails to make the first two years of college life as effective as they might be

European countries gain much for the children of the upper classes and for all who are looking forward to the university and professional studies in life by making their secondary schools—the gymnasium, the realschule, the lycee, English public schools, etc—to parallel their elementary schools in time rather than to follow them

I should strenuously oppose any scheme for the reorganization of public education in this country based on class distinctions I should oppose also any dual system of schools

I believe in our democratic tandem system of elementary and secondary schools, but I believe it is possible to make a much better arrangement and use than we now do of twelve years' elementary and secondary schooling

DISCUSSION

Harry Pratt Judson, President, University of Chicago The age at which students on the whole receive their M D degree is too advanced, and the causes are perfectly obvious One is the utterly unrelated character of our American educational system Every branch today is considered separate from everything else Those in charge of medical education have steadily advanced the requirements for beginning medical work wisely and advisedly Those entrusted with our colleges have and will advance their requirements for admission In secondary schools, many subjects are taught which were not thought of a generation ago In like manner, elementary schools have many studies which a generation ago were not heard of Unfortunately there has been no correlative force in this country to view education as a whole or to bring it together in a systematic or coherent way I believe the elementary school work can be covered in six, or at least in seven years, because we have tried and found that it can be done We can save not only one year in this way, but ultimately, I believe two years What we need is a complete, drastic reorganization of our whole system of education involved in colleges and secondary schools preceding the professional work It is not so much a knowledge of different things that students need, but a better training of the mind

C H Judd, Professor of Education, University of Chicago We need the cooperation and intelligent sympathy of the community When a school man starts to work out these reorganizations he commonly finds he is definitely opposed by the community It is difficult to make the changes suggested when it comes to their administration In the University of Chicago we have eliminated the eighth grade in the elementary school, but it was opposed by some of the patrons of the institution There is a general movement at the present time in the United States toward the organization of what is known as the junior high school, but this is opposed in many quarters as an innovation inimical to the development of our American educational progress

Thirty per cent of our colleges today are going out of business, and the expansion of secondary schools has been enormous In the last twenty-five years we have twice doubled the total population in our secondary schools In 1890 there were 300 000 students in secondary schools, this year there were 1 300 000 students It necessitates a complete reorganization of the elementary and secondary schools and the subjects taught and by means of the junior high school there will be a welding together of the schools, which is of great importance We need sufficient backing to carry the work out and to articulate the junior college with the high school With the proper reorganization we could develop a satisfactory American system of education

Kendric C Babcock Dean College of Liberal Arts and Sciences University of Illinois All who have watched higher education and secondary education as connected with it agree that much time is wasted and that we should proceed at once to save as much of that time as possible Doctors and educators are not agreed as to how that saving should be made One reason for students getting their M D degree at an advanced age is the tendency of youngsters to change their minds After spending four years in a high school many do not want to pay the price of changing their minds Many students in the premedical course have gone over to law or to some other subject and afterward taken up medicine

Dr George Royal Des Moines, Iowa The new president in the University of Michigan has gathered statistics showing what effect university training has had on students He found that the really successful or prominent men were those who graduated at 22 and 23 and that those who graduated at 25 or later were not, as a rule, so successful Two years can be saved before students reach the medical college

Dr. H Gideon Wells Chicago The University of Chicago has a quarterly system which permits a student to work eleven months in the year instead of nine, which enables him to do more work, although it does not shorten the period at which he may graduate

Dr S B McCormick, Pittsburgh It is necessary to educate the people in regard to this plan of saving one or two years' time in preliminary studies The time is coming when many institutions which are now colleges will become junior colleges and be incorporated under the general public system of education If we have cooperation, we shall ultimately eliminate much of the waste of time

Mr Augustus A Downing, Albany N Y I consider it a crime against the child and against the community to turn a child lose from the elementary school and high school at the end of June and let them go anywhere and everywhere until the first of September They would be better off if the school term were materially lengthened

(To be continued)

NEW YORK ACADEMY OF MEDICINE

Meeting held Jan 18 1917

Dr Edward D Fisher in the Chair

Etiology of Typhus Fever in Mexico

Drs P K Olitsky, B S Denzer and C E Husk This report presents the results of an expedition into Mexico during the early part of 1916 for the purpose of studying typhus fever The work was done in Matehuala Central Mexico, a town of 10 000, in which the estimated number of cases during the winter months was 500 The mortality was 20 per cent Clinically, the disease corresponded to the classical type The scientific work consisted in virus and bacteriologic studies serologic tests work on the pathogenicity of the organism recovered from the blood, and prophylactic inoculation with a vaccine made from the *Bacillus typhi-exanthematici* The virus studies confirmed previous observations that the blood of typhus fever patients removed during the height of the disease and injected into guinea-pigs produces a rise in temperature of from four to eleven days duration after the incubation period of from seven to fourteen days The Mexican virus was transmitted in this manner through three generations of animals Blood cultures were taken in thirty-one cases and numerous controls The technic and mediums employed were those used in the original studies in New York in 1914 except in three cases Of the twenty-eight cultures made on 2 per cent glucose serum agar only eight could be followed a sufficiently long time These eight cultures showed an organism identical with that first isolated and described by Plotz in 1914 Agglutination tests performed on the serum of typhus fever patients with the *Bacillus typhi-exanthematici* confirmed the previous findings The organism obtained from the blood, as well as that isolated from lice was identified by its morphologic and cultural characteristics and serologic reactions The organism is a slender bacillus about 1 micron in length usually gram-positive, although many strains are gram-positive It is an obligatory anaerobe, and grows sparsely on 0 5 per cent serum glucose agar, it ferments glucose, maltose inulin and galactose, and fails to ferment lactose, mannite and saccharose Agglutination, using endemic typhus serum against Mexican strains, showed positive reactions in four out of five of those tested In like manner, complement fixation tests against typhus immune serum showed uniformly positive results, and uniformly negative results with nontyphus serum In a word there is a complete correspondence culturally and serologically of the Mexican organism with the bacillus of Plotz Experiments on guinea-pigs indicated that the organism is pathogenic for this animal in the original culture, and loses its virulence on repeated cultivation

Isolation of the Bacillus Typhi-Exanthematici from the Body Louse

Drs P K Olitsky, B S Denzer and C E Husk Up to the time of the Mexican expedition all cultural work proved fruitless One of the results of the expedition was the finding of the same organism in infected lice which Plotz reported as the etiologic agent of typhus fever The work in Mexico on typhus-infected lice may be grouped into (1) the production of typhus fever by the injection of infected lice and (2) the isolation of the typhus bacillus from such lice In two instances the injection of thirty and sixty-five lice, respectively, intraperitoneally into guinea-pigs led to the production of typhus fever In the one case cultured the typhus bacillus was recovered from the spleen of the guinea-pig Six series of lice taken from five different typhus patients were cultured From all of these lice, the typhus bacillus was isolated In all the experiments made, these lice were proved infectious A striking observation was that these organisms are usually gram-negative in the original colonies After one or two subcultures they become definitely gram-positive Since 1910 many observers have reported the finding of an organism in typhus-infected lice but not in normal lice This organism is believed to have a causal relationship to typhus fever In Mexico we were able to grow the bacterium and to show that morphologically, culturally and serologically it is identical with the typhus bacillus

Etiology and Epidemiology of the Typhus Fever of Eastern Europe

Drs G Baehr and H Plotz The bacteriologic studies made on sixty-four individuals with the disease demonstrated that the *Bacillus typhi-exanthematici* is regularly present in the blood of people suffering from the typhus fever of eastern Europe In Volhynia anaerobic blood cultures were positive in nineteen out of twenty-four cases, or 79 per cent of the cases studied In the Balkans, where blood cultures often could not be placed in an incubator until four or five days after they were taken, the percentage was lower, 47 5 The relative bacteremia was also proportional to the severity of the disease For example, in the Russian typhus in which the mortality was 5 5 per cent and in the Balkan 1915-1916 typhus in which it was 11 per cent, the bacteremia was greater than in the New York series in which the mortality was negligible, 0 2 per cent , it was much less than in the Mexican typhus (mortality about 20 per cent) or the severe Balkan type of the disease (mortality from 18 to 60 per cent) It was found, furthermore, that during chills enormous numbers of organisms may be present in the blood, the maximum being 1,183 colonies in 13 c c of blood Morphologically, culturally and serologically, the organisms recovered from these Russian and Balkan patients were identical with those originally recovered in the New York cases The *Bacillus typhi-exanthematici* has therefore now been recovered by the authors and others from typhus fever patients in the United States Mexico Serbia, Bulgaria, Austria and Russia The maximum titer of agglutinins for *Bacillus typhi-exanthematici* in the blood of the cases studied was 1 1,600, the average was 1 200 As a result of systematic studies carried out in 100 cases of typhus fever, it was found that agglutinins usually first appear in the blood on about the tenth or eleventh day of the disease or at about the time when the temperature begins to break The agglutinin titer of the serum then rapidly increases as the temperature drops to normal, and reaches its maximum toward the end of the first or the beginning of the second week of convalescence At this time 97 per cent of the serums were positive After this time the agglutinins diminish in amount very slowly, and usually persist in the blood for many months The curve of the development of specific agglutinins in typhus fever is therefore a typical immunity curve During the course of the work, specific agglutinins and complement-fixing antibodies were found in the blood of twenty normal persons, in amounts otherwise observed only in convalescents from typhus fever None of these persons had ever shown any clinical manifestations of typhus fever These twenty patients were either physicians, nurses or male attendants in typhus hospitals in which they were constantly handling typhus patients, or they were peasants who had been living with relatives or friends ill with the disease As these twenty contacts were the only persons, aside from typhus convalescents, in whom such findings were made, it was reasonable to assume that during the time of their exposure to typhus fever they had actually been infected with the bacilli in quantities sufficient to induce the clinical manifestations of the disease, and had reacted with the production of specific antibodies Such persons, who have probably become immune without having the disease, may act as carriers of infected lice and be agents of their distribution throughout a community

Studies in Prophylactic Immunization with the Bacillus Typhi-Exanthematici

Drs H Plotz, P K Olitsky and G Baehr Vaccination was carried out in Serbia, Bulgaria, Russia and Mexico during the winter of 1915-1916 The vaccinations were restricted as far as possible to those persons who were most exposed to infection In addition to the doctors, nurses and orderlies many other hospital units were vaccinated, and in a few instances small military groups The reactions following vaccination were very slight Among the 5,251 vaccinated persons in Bulgaria, there occurred only three cases of typhus fever, one of the patients died After completion of vaccination, although 300 patients were admitted in the subsequent three weeks, no further house infection occurred In Volhynia 3,169 persons in forty-six institutions were vaccinated, and up to May, 1916 there occurred only three cases of typhus fever among those vaccinated About 2,000 were vaccinated in Mexico, but owing to the fact that the men carrying on the work had to leave Mexico, no statistics are as yet available Whatever reports have come from Mexico up to the present time seem to be favorable Altogether 8 420 persons, members of 109 hospital, sanitation and other units in Serbia, Bulgaria and Volhynia were vaccinated during the epidemic of 1915-1916 and only six of this number developed the disease during the four months of the epidemic

DISCUSSION

Dr Gedide A Friedman I have observed typhus fever in Russia during three *epidemics* and I have also *seen many* sporadic cases I was glad to hear a confirmation of the opinion I expressed six years ago about ambulatory typhus cases I have seen such patients over and over again, sometimes with high temperature, who gave a history of having been sick five or six days I was interested to hear of the severe chills which occurred in some of the cases seen in the Balkans It is a peculiar fact that typhus fever manifests itself in the beginning with chills which were not seen in other diseases, except perhaps malaria, and I have seen cases wherein the chills lasted for hours I have occasionally observed chills in children, but very rarely , commonly typhus in children does not begin with a chill, or perhaps a slight chill might be overlooked The mild course of the typhus tabulated in the statistics might be explained by the fact that most of the patients were Jews, and I have emphasied the fact that the course of typhus in some races, such as the Jews and Arabs, was mild and the mortality was not so high as among other races The most severe cases occurred among the Russian peasants As to the body louse being the transmitting agent, I could add from my own experience that this is probably true because typhus is a disease of the poorer classes I have rarely seen it among the well to do

Dr Nathan A Brill There is not the slightest doubt in my mind that the *Bacillus typhi-exanthematici* is the only cause of typhus fever, and that the body louse is the agent of transmission of the epidemic form of the disease to man There is some doubt in my mind whether it is the only agent concerned in the transmission of the endemic form of typhus fever It has been conclusively shown by Nicolle, Anderson and Goldberg that the body louse is rendered inactive by temperatures above 20 C (68 F) that the optimum temperature for its life and activity is between 12 and 14 C (53 6 and 57 2 F), and that it is impossible to keep lice alive in the presence of food in test tubes exposed even to the moderate temperature of the vest pocket The effect of heat on the body louse is utilized by the peons of Mexico, whose important article of dress is the blanket, which is used for all purposes of covering To rid their blankets of lice they expose them to the warm rays of the sun and on shaking them thereafter, the lice thus rendered lethargic fall off and are removed It appears that the body louse is active in cold and inactive in warm temperatures This fact would explain many of the epidemiologic features of *epidemic* typhus fever, a disease chiefly confined to the colder regions of the earth, and when it does occur in the warmer latitudes it is restricted in the main to the highlands where the daily temperature is low All statistics will show, whether you search the English, the German or the Russian, in all of whose countries epidemic typhus fever has repeatedly appeared, that this form of the disease is rampant in the winter and diminished in severity and in the number of infected people as the summer approaches, when it disappears almost entirely When, on the other hand one studies the facts which relate to the endemic form of typhus fever as it existed in New York City, it is found that by far the greatest number of cases of endemic typhus fever occur during the summer months, when according to investigators the body louse is inactive and does not live A study of the statistics dealing with this point shows that 60 per cent of all endemic typhus fever cases occurred in the four summer months, between June and October, while the remaining 40 per cent were distributed over the other eight months of the year, with by far the fewest cases in the winter, the very reverse of the situation as regards the epidemic form of the disease This induces me to believe that either we shall have to modify our views in reference to the effects of temperature on the body louse, which seem fairly well established, or that we shall have to look for some other agent of transmission of the infection in the endemic form of typhus fever Another argument in support of this view is furnished by the fact that house and family infection of the endemic form of this disease practically does not exist In over 400 cases of this form of the disease observed by me I have never seen more than one member of a family affected at even approximately the same time until last spring when the first cases of nearly simultaneous infection of husband and wife were seen in the hospital If the body louse transmits the endemic form of the disease one would expect marital infections to be very common Such infections are extremely rare and practically nil Therefore while I am not prepared to say that the body louse is not an agent in the transmission of endemic typhus fever, I hope to see more positive proof than has been offered that there is no other source and agent of infection in the endemic form of the disease

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Public Health, Boston

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1 Necessity for Health Standards D B Armstrong, New York —p 1
2 Some Shortcomings of Sociosanitary Investigations F Schneider, Jr —p 3
3 Application of Statistical Method to Public Health Research L I Dublin New York —p 14
4 Survey of Dairy Score Cards C E North New York —p 25
5 Housing Conditions as Factors in Production of Disease J Ford Boston —p 42
6 Model Law for Reporting Stillbirths L W Thomas Brooklyn —p 46
7 Improved Technic in Bacterial Air Analysis W W Browne New York —p 52

American Journal of Roentgenology, New York

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8 *Roentgenologic Treatment of Five Hundred and Thirty Cases of Malignant and Other Tumors of Face H W Dachtler, Toledo Ohio —p 599
9 *Roentgen Ray Treatment of Tuberculous Peritonitis P Eisen Chicago —p 602
10 *Treatment of Nevi W S Newcomet Philadelphia —p 605
11 *Present Status of Roentgenotherapy in Leukemia H K Pancoast Philadelphia —p 611
12 Comments on Roentgenography A Soiland Los Angeles —p 613
13 Knife Blade in Brain E Blaine Chicago —p 622
14 Bed Support. D R Bowen Philadelphia —p 625

8 9 10 and 11 Abstracted in The Journal, Nov 4, 1916, p 1392

Cleveland Medical Journal

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15 *Pyloric Stenosis in Infancy H G Sloan, Cleveland —p 761
16 Case of Fracture of Base of Skull and Some of Its Characteristic Symptoms A Peskind Cleveland —p 776
17 *Obscure Case of Empyema A Peskind Cleveland —p 788
18 *Fate of Iodin, Iodids and Iodates in Body T Sollmann, Cleveland —p 792
19 Case of Ethmoiditis in Child Complicated by Unilateral Exophthalmus D A Prendergast, Cleveland —p 802

15 **Pyloric Stenosis in Infancy**—Sloan recommends the Rammstedt operation for these cases Vomiting is seen much less than after gastro-enterostomy In case the baby cries for fifteen minutes or over, the author advocates giving paregoric, 30 drops, to keep it quiet during the healing of the wound There is practically no shock when the surgical procedure is carried out on the principles outlined Food is taken as in a normal infant and the weight gain is immediate and progressive So far, literature contains no account of the recurrence of the symptoms following the Rammstedt operation

17 **Case of Empyema**—The most interesting features in Peskind's case was that the child must have originally suffered from a latent pneumonia or pleuropneumonia of the upper right lung, which culminated in a small interlobar encysted empyema, perhaps in the pleuropericordial fold

18 **Iodin, Iodids and Iodates in Body**—The immediate object of Sollmann's investigation was to determine these questions (1) whether the administration of elementary iodin can result in the appearance of iodid and iodate in the blood or tissues, and (2) whether elementary iodin can be liberated from iodid and iodate, combined or separately, with the reaction (hydrogen-ion concentration) that is known to exist in the body The following results were found Tests depending on the liberation of small quantities of iodin cannot be applied to protein-containing fluids or to urine, since considerable iodin is immediately bound by the aromatic radicals Under the conditions used, the amount of iodin bound by serum was about 1 3,000 By the use of the dialysis method it was shown that neither iodid nor iodate undergo any change in the serum Free iodin is promptly bound, with the formation of iodid, but no iodate is formed even in the presence of alkali so that subsequent acidulation does not liberate iodin (unless, of course, more iodin has been added than can be disposed of by the serum) The statements hold also for other proteins, urine and phenol Large doses of free iodin, administered by stomach, exist in the blood solely as iodid The addition of acid to the blood does not regenerate iodin No iodin is liberated from iodid iodate or iodid nitrite, or iodate sulphocyanid mixtures, until the acidity surpasses Hp = 4 49 It is therefore impossible that iodin should be liberated from iodid under any conditions existing in the body (excepting solely the gastric juice) On the other hand, the alkalinity of the body is not sufficient to bind any noticeable quantity of free iodin—even in the absence of proteins and aromatic groups The questions that were proposed are therefore answered in the negative

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23 Some Frequent Complications Following Operations for Acute Appendicitis F N Cochems Salida —p 17
24 Status of Medical Care in Modern Industries J M Shapiro Denver —p 22
25 Dermoid Cyst of Ovary in Child of Five Years G H Cattermole Denver —p 25

Florida Medical Association Journal, Jacksonville

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33 Some of Recent Ideas on Infant Paralysis J H Fellows, Pensacola —p 214

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34 *Venom Hemolysis After Splenectomy, Resistance of Erythrocytes of Normal Dogs to Hemolytic Activity of Cobra Venom J A Kolmer Philadelphia —p 195
35 *Effects of Serum Treated with Pararabin E Zunz and C Mohilevith Lausanne, Switzerland —p 211
36 *Studies on Blood Proteins Albumin Globulin Ratio in Experimental Intoxications and Infections S H Hurwitz and G H Whipple San Francisco —p 231
37 *Nymph and Prosopon of Tsutsugamushi, Leptotrombidium Akamushi N Sp M Nagayo, Y Miyagawa, T Mitamura and A Imamura Tokyo, Japan —p 255
38 Is Trombidium Holosericeum the Parent of Leptus Autumnalis? M Nagayo Y Miyagawa, T Mitamura and A Imamura, Tokyo Japan —p 273
39 *Study of Pancreas Intoxication E W Goodpasture Boston —p 277
40 *Cyclic Changes in Mammary Gland Under Normal and Pathologic Conditions Changes in Nonpregnant Guinea Pig L Loeb and C Hesselberg St Louis —p 285
41 *Id Changes in Pregnant Guinea Pig Effect of Luetin Injections L Loeb and C Hesselberg St Louis —p 305
42 Comparative Study of Certain Actions of Epinephrin in Cat and Rabbit T S Githens New York —p 323
43 *Significance of Epithelial Cells and Saprophytes in Sputum M Otani Tokyo Japan —p 333
44 Cultivation of Trichomonas of Human Mouth (Tetratrichomonas Hominis) T Ohira and H Noguchi, New York —p 341

34 **Venom Hemolysis After Splenectomy**—Since the phenomenon of venom hemolysis appears to be intimately associated with the lecithin or ether soluble activators present in erythrocytes, particularly fatty acids and their soluble soaps, and the removal of the spleen has been shown to alter the content of fatty substances in the blood, the resistance of erythrocytes to venom before and after splenectomy was investigated by Kolmer He found that the resistance of erythrocytes of dogs to the hemolytic activity of cobra venom is increased after splenectomy This increased resistance was observed as early as four days after splenectomy and usually persisted for a period of about three weeks when the resistance gradually decreased to normal or slightly beyond The decrease of resistance to the hemolytic activity of venom for the erythrocytes of splenectomized dogs following the primary increase is apparently coincident with the anemia following splenectomy An intercurrent infection such as distemper, tends to reduce the resistance of erythrocytes to venom An increased resistance of the erythrocytes to hypotonic salt solutions was found with all the splenectomized dogs in which these tests were made Increased resistance to hypotonic salt solutions apparently persists for a longer period than the increased resistance to cobra venom As the lysis of erythrocytes by venom is dependent on the presence of certain lipoidal substances within the cells, and as the spleen may exercise an influence over the lipoidal contents of corpuscles and serum, it is suggested by the author that the increased resistance of erythrocytes to the hemolytic activity of venom after splenectomy is due to alterations in the lipoid content of the erythrocytes

35 **Effects of Serum Treated with Pararabin**—Horse serum, kept for two hours at 38 C in the presence of one fifth its volume of a suspension of 0 5 per cent of pararabin in physiologic salt solution and then freed by means of centrifugalization and filtration from the pararabin, produced, when injected in appropriate doses into a normal rabbit, a considerable and prolonged fall of the blood pressure, a distinct retardation in the coagulation of the carotid blood, and, sometimes, in addition, acceleration of the respiratory rate and the expulsion of numerous scybala, that is, the various symptoms observed to occur after the intravenous injection of horse serum in sero-anaphylactized rabbits If the horse serum is first heated for thirty minutes to 56 C and then treated with pararabin in the manner described above, the intravenous injection of this serum into a normal rabbit exerts no more action on the arterial pressure, the coagulability of the arterial blood the respiratory rate, and the intestinal activity, than does normal horse serum when introduced into the vein of a normal rabbit

36 **Albumin Globulin Ratio in Experimental Intoxications and Infections**—The intoxication which develops as the result of a simple obstruction or a closed intestinal loop is accompanied by an alteration in the normal albumin globulin ratio of the blood serum, the globulin fraction is greatly increased and at times the normal relation of the two fractions may show a complete inversion The increase in the globulin content of the blood serum is most marked in the animals which show some of the complications met with in loop animals rupture of the loop and peritonitis In the latter conditions especially the globulin increase is rapid and large The authors believe this reaction to be of diagnostic value in acute infections attended by the sudden liberation and absorption of a toxic exudate Infections and intoxications produced by inflammatory irritants are also accompanied by a rise in the blood globulins This observation suggests that tissue disintegration with absorption of toxic products is responsible for the changes noted, and that bacterial invasion is important only in so far as it gives rise to toxic substances Animals which have developed a tolerance to proteose intoxication following the periodic injection of small doses of proteose, do not show a globulin increase These experiments do not support the view that the rise in globulins observed in these experimental conditions is an expression of a resistance or tolerance developed by the animal From the experimental evidence it seems more probable that the alteration in the partition of the blood protein fractions is one of the results of the metabolic disturbance which has been shown to occur in these conditions

37 **Nymph and Prosopon of Tsutsugamushi**—Tsutsugamushi or kedani disease is an acute exanthematous infectious disease, which at present occurs only in the northern coast districts of Japan, namely in Niigata ken Akita ken and Yamagata ken Recently it has also been found to exist in Formosa The mortality of the disease varies according to the district and year, between 20 and 50 per cent It closely resembles Rocky Mountain spotted fever, but it possesses some distinct features The specific cause of the disease has not yet been established with certainty That tsutsugamushi disease is transmitted to man by a diminutive mite is now established Brumpt considered it to be a larva of a new trombidium, which he called *Trombidium akamushi* The nymph and the prosopon of the tsutsugamushi, however, do not bite warm blooded animals That the investigation of this mite has so far been neglected is chiefly due to the danger of the bite which causes the disease and to which the investigators are exposed while working in the infected region The authors report on the nymph and the prosopon of the tsutsugamushi

39 **Pancreas Intoxication**—According to Goodpasture a toxic constituent is present in the fresh pancreas of dogs before trypsinogen can have been activated The toxic fraction is present in the betanucleoprotein, and therefore is thermostable It is gradually destroyed by autolysis but can be obtained in concentrated form from a gland which has autolyzed twenty-four hours The toxic material is probably protein in nature Intravenous or intraperitoneal injection of from 0 05 to 0 1 gm per kilogram of body weight is usually fatal and elicits in dogs symptoms comparable to those of spontaneous hemorrhagic necrosis of the pancreas Dog pancreas differs from that of beef or pig in that guanylic acid and toxic protein combined with it are slowly broken down by autolysis After autolysis of dog pancreas the toxic protein and guanylic acid may be separated and obtained in relatively pure form

40 **Changes in Nonpregnant Guinea-Pig**—The authors found that a definite cycle exists in the mammary gland of the nonpregnant guinea-pig which corresponds to the cycle in the ovary and uterus Extirpation of the ovaries prevents not only the proliferation of the mammary gland associated with the first stage of the sexual cycle, but in all probability also

inhibits the proliferation of the mammary gland which occurs under certain conditions toward the end of the sexual cycle, or in instances of experimentally prolonged sexual cycle in which well preserved corpora lutea and deciduomas are present In animals in which the ovaries were hypotypical, the mammary glands were in an inactive condition The presence of hypotypical ovaries has the same influence on the mammary gland as castration Complete extirpation of the corpora lutea seems directly or indirectly to prevent the secondary proliferation of the mammary gland, which occurs during the latter part of the sexual cycle or during an experimentally prolonged cycle, in cases in which the extirpation is not followed at once by a new ovulation In cases in which the whole or almost the whole uterus had been extirpated, the corpora lutea were well preserved and the mammary gland was proliferating

41 **Changes in Pregnant Guinea-Pig**—In the pregnant guinea-pig proliferation of the mammary gland becomes regular only at a later stage of pregnancy, namely, during the period following the twenty-fourth day of pregnancy Previous to this period proliferation was absent in the majority of cases After the completion of pregnancy and in the beginning of secretion some mitotic proliferation may still be present, but it soon ceases Some proliferative stimulus seems still to be active In cases in which abortion took place in the first half of pregnancy, secretion in the gland was not established, secretion occurred in two animals aborting toward the latter part of pregnancy In guinea-pigs castrated during an early period of pregnancy, in which pregnancy continued for some time, proliferative changes were absent in the mammary gland Extirpation of the corpora lutea during pregnancy induces a new ovulation and with it the primary proliferation in the mammary gland, abortion does not necessarily prevent these proliferative changes Five injections of cow s lutein given in relatively large quantities intraperitoneally do not produce proliferation of the mammary gland in the guinea-pig

43 **Epithelial Cells and Saprophytes in Sputum**—Microscopic examination of sputum that has been washed with isotonic salt solution, Otani says indicates its source Sputum from above the vocal cords contains polygonal flat epithelial cells and numerous species of nonpathogenic micro organisms Sputum from below the cords is clear of saprophytes, although it sometimes contains broncho-alveolar cuboidal cells In every instance he found erythrocytes in the pulmonary sputum after severe pulmonary hemorrhage Six cases of laryngeal affection referred to in the paper had had no subjective symptoms, but microscopic examination showed tubercle bacilli in the laryngeal sputum

Journal of Pharmacology and Experimental Therapeutics, Baltimore

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45 *Salicylates Salicylate in Blood and Joint Fluid of Individuals Receiving Full Therapeutic Doses of Drug R W Scott, T W Thoburn and P J Hanzlik Cleveland—p 217
46 New Time Marker C C Lieb New York—p 227
47 *Pharmacology of Stovain M I Smith and R A Hatcher New York—p 231
48 *Elimination of Hexamethylentetramin (Urotropin) as an Index of Renal Function K. G Falk and K Sugiura, New York—p 241

45 **Salicylate in Blood and Joint Fluid**—The concentration of salicylate in the blood and joint fluid of individuals suffering with rheumatic fever and receiving full therapeutic doses of sodium salicylate was estimated by the authors The results indicate that the concentration of salicylate in both fluids does not differ markedly, being somewhat less on the whole for the joint fluid as might be expected The following average concentrations were found 0 02 per cent for blood and 0 018 per cent for joint fluid The concentration of salicylate tends to be less in the blood of rheumatic than nonrheumatic individuals There was no demonstrable free salicylic acid in the joint fluid of rheumatic fever patients The true reaction and the reserve alkalinity of the blood were not perceptibly altered by the administration of salicylate even in large doses

47 **Pharmacology of Stovain**—Experiments made by Smith and Hatcher afforded no evidence that stovain exerts any direct action on the blood vessels after the intravenous injection in cats, and it failed to change the caliber of the renal vessels of the cat or dog when perfused in concentrations of 1 10,000 to 1 2,500 It depresses the heart when toxic doses are injected intravenously, and when the rabbit's heart is perfused with a solution containing 1 part of the drug in 10,000 parts of Locke's solution Stovain causes death by inducing immediate and simultaneous paralysis of the heart and respiration, the action on each being independent of that on the other Stovain disappears rapidly from the blood stream after its intravenous injection Little or none, of the drug is excreted unchanged in the urine of the cat Stovain is slightly, but distinctly, more toxic than novocain by similar modes of administration, and complete recovery does not follow the administration of toxic doses of stovain so promptly as it does that of corresponding doses of novocain

48 **Elimination of Hexamethylentetramin**—The object of this paper is to show the possible use of hexamethylentetramin as a test for renal function In none of twelve cases diagnosed clinically in general terms as 'nephritis" was any hexamethylentetramin excreted A case diagnosed as 'nephritis and gout" showed results similar to those diagnosed as nephritis Three cases of gout gave normal hexamethylentetramin excretion slightly low dye and high nonprotein nitrogen tests, high uric acid and in two of the three, normal test meal results In two cases diagnosed as cirrhosis of the liver, the excretion of hexamethylentetramin was low or zero The nonprotein nitrogen and uric acid findings were normal but the test meal results showed impairment of kidney function

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52 Infectious Streptococcic Diarrhea of Dysenteric Type Report of Four Fatal Cases in One Home G W Covey Lincoln—p 213
53 Case of Diabetes Associated with Renal Tuberculosis B R McGrath and R C Woodruff, Grand Island—p 216

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77 Id C H Frazier Philadelphia —p 147
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90 *New Method of Applying Autogenous Intramedullary Bone Transplants and of Making Autogenous Bone Screws E J Hoglund Chicago —p 243
91 End To End Anastomosis of Colon P Lockhart Mummery London —p 247

76 **Surgery of Peripheral Nerves** —Porter studied 187 cases of peripheral nerve lesions In four cases of facial paralysis attempts at suture were made one primary after a razor cut, with unknown result, one six months after a pistol wound suture of the eleventh to the seventh nerve no improvement The third complete paralysis thirteen years after a convulsion The facial was split and a slip of the hypoglossal placed in the niche Fifteen years afterward there is partial recovery In the fourth case, following a mastoid operation two years before the facial was anastomosed to half of the hypoglossal Ten years afterward there are weak voluntary facial movements though faradic response is good In one case of brachial plexus lesion, operated on four months after the accident all of the cords found hopelessly blended in a mass of scars were excised and an entirely new plexus constructed which, Porter says, would defy a professor of anatomy In this case flexion of the wrist first began three years after operation, improvement continued and now, while there is flexion of the arm, wrist and fingers, and some power in the triceps, the extensors are paralyzed

The results after musculospiral paralysis are very satisfactory The nerve has been freed from adhesions or bony callus in eleven cases, with marked improvement in nine failure in one, one not heard from There have been fourteen sutures six have been successful In 1913 Porter transplanted 4 inches of a dog s sciatic between the ends of the nerve There has been no improvement The longest case was one of resuture six years after an unsuccessful union result unknown probably failure One primary suture recovered in eleven months There have been forty-eight cases of suture of the ulnar and median nerves A few of the primary sutures have been almost perfect as has one (3 months old) secondary suture of the ulna in the arm three years after the operation The results of the majority were unsatisfactory though trophic disturbances have usually been prevented Porter has operated three times on the posterior nerve roots for pain never with complete success He is certain that in addition to the division of the roots forming the brachial plexus that the fourth cervical and second dorsal should also be cut Porter sounds a note of warning about tourniquet paralysis A rubber tube should never be used about the midarm Even if the arm is padded the nerve may be crushed against the bone

78 **Resection of Thyroid** —In large, diffuse, simple goiters Pool says, double resection is the procedure which most closely meets all indications It relieves pressure, minimizes danger to parathyroids and recurrent laryngeal nerve provides a sufficiency of thyroid tissue, and ensures symmetry Double resection may be carried out readily with little hemorrhage either by Balfour s method or by the use of a clamp as described, or by a combination of the two methods

79 **Complications of Percy's "Cold Iron" Method** —The authors are convinced from a short experience with Percy s method, that fatalities must have been frequent wherever this method has been used extensively They report two fatal cases The development of a septicemia from the infected tissue at the coagulated area was the cause of death The Percy technic was applied most rigidly Nevertheless, microscopic sections show active uninjured carcinoma respectively four, eight and sixteen days afterward In both cases it was found within 1 centimeter of the previous site of the heating iron The necrotic mass produced by the cautery forms a particularly favorable medium for bacterial growth The organisms may spread to the surrounding tissues or reach the general circulation through the local thrombosed vessels The technic is considered by the authors to be ineffectual in eradicating the carcinoma

83 **Surgery of Bronchiectasis** —Included in Robinson s paper is a report of five complete resections of the lower lobe of the lung with one death Excision of the diseased portion of one lung Robinson says is the only curative treatment of advanced bronchiectasis Medications, inhalations intratracheal injections intratracheal irrigations climatotherapy or vaccines are useless Lung resections should be performed in a two or three stage operation The several stage operation of the rib resection type has been attended, in the author's experience with a 20 per cent mortality The operation of intercostal lobectomy has distinct technical advantages When performed in one stage an undue risk of life is incurred The physiologic advantages of the several stage technic may yet be successfully combined with the technical advantages of the intercostal exposure

86 **Ectopic Pregnancy** —The conclusions reached by Oastler from observation of these cases would seem to be that all subacute ectopic pregnancies should be operated on at once removing from the abdomen the tube affected, the fetus, placenta membranes and blood All acute cases should be operated on at once except cases in extremis In these cases it would seem advisable to wait watching the patient very carefully If no improvement occurs in a very short time operate Two patients of this series bled to death The ovarian artery had ruptured in both One was an interstitial pregnancy As there is no doubt therefore that patients can bleed to death operation must not be delayed too long in waiting for a reaction in these extreme cases The abdominal route was chosen in all these cases and it is undoubtedly the only safe procedure to follow Inasmuch as there were no cases extending to the viability of the child in the series, there will be no discussion of the treatment in this condition

88 **Continuous Drainage for Empyema** —Philips has devised a special cannula which is practically nonobstructible, with which one can drain the pleura through an intercostal space, into an air-tight receptacle Special provision is made for the attachment of a suction pump and a negative pressure manometer This makes it possible to maintain any desired negative pressure in the pleural sac while draining it

90 **New Intramedullary Bone Transplant** —The original feature of this operation is the method of cutting the graft at a distance of about 1 inch from the fracture, so as to leave a complete ring of bone at the fracture end The splint is pressed down into the medullary canal and driven across the line of fracture, so that half of the splint will be in each fragment

Vermont Medicine, Rutland

January II No 1

92 Problems in Administration of State Medicine M Nicoll Jr New York —p 1
93 Case of Strangulated Hernia with Unusual Symptoms L H Ross Bennington —p 7

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Journal of Tuberculosis, London

January XI No 1

1 Tuberculosis Movement Under War and After War Conditions T D Acland, J Moore and J Lumsden and Others—p 1
2 Practical Considerations on Conduct of Work at Tuberculosis Dispensary H A Ellis—p 13
3 Tubercle Bacillus A H Miller—p 18
4 After Care of Consumptive Working Man P C Varrier Jones—p 21

British Medical Journal, London

January 13 I No 2924

5 *Treatment of Burns by Paraffin A J Hull—p 37
6 Early Diagnosis and Treatment of Syphilis J H Sequeira—p 38
7 Diseases of Male Urethra F S Kidd—p 41 To be continued
8 *Treatment of Acute Bacillary Dysentery J B Fisher—p 43
9 *Id G A Finlayson—p 46
10 Importance of Early Prophylactic Injection of Antitetanic Serum in Trench Foot D Bruce—p 48

January 20 No 2925

11 *Flavine and Brilliant Green Antiseptics Used in Treatment of Infected Wounds C H Browning, R Gulbransen E L Kennaway and L H D Thornton—p 73
12 *Id D Ligat—p 78
13 Diseases of Male Urethra F S Kidd—p 79 To be continued
14 Two Cases of Removal of Foreign Bodies (Metal) from Eye H T Kelsall—p 81
15 Case of Actinomycosis Successfully Treated by Vaccine C W Dean—p 82
16 *Home Made Bread Substitutes for Diabetic Patients F Nicholson—p 82

5 See The Journal Feb 3 1917, p 373

8 **Treatment of Acute Bacillary Dysentery**—The treatment given these patients by Fisher was dietetic medicinal and specific Patients are only allowed albumin water barley and lemon water for the first forty-eight hours Coincidentally with the improvement of the general conditions the diet is gradually increased Milk is not allowed except in the form of pudding or custard One dram of magnesium sulphate is given three times a day for the first few days, and then as the stools diminish in frequency and improve in appearance the amount is gradually reduced This applies to practically all cases Rectal lavage with 1 1 000 solution of copper sulphate and mistura simaruba often benefit more chronic cases Reliance is placed on specific treatment namely, multivalent antidysenteric serum Each individual case must be judged on its merits In the more severe cases Fisher injects 80 c c into the flank within a few hours of admission, but generally leaves the milder ones until the following morning, and then may give 40 or 60 c c One large dose of serum is sufficient to cure some cases others though much improved require more, and in these, after waiting forty-eight hours, Fisher gives a further 60 or 80 c c A few of the worst may need a third or even a fourth dose Some of the fulminating variety have been given 140 or 160 c c intravenously within twenty four hours of admission If four doses of 80 c c each spread over a period of six or seven days, have not brought about the desired result, further injections are indicated

9 **Id**—Results have convinced Finlayson that 100 c c antidysenteric serum should be given intravenously without delay followed if considered necessary, by a second dose within twenty four hours After one intravenous injection of 100 c c, subsequent doses may be injected subcutaneously into the axilla infraclavicular space or flank The amount which Finlayson usually gives is 40 c c in the morning or evening In association a mixture containing 1 dram of magnesium sulphate 1 dram of sodium sulphate to half an ounce of water, or 1 ounce of mistura alba is administered hourly or even more frequently, until the motions became pale and watery containing perhaps a few blood stained shreds, the interval between the doses is then lengthened according to the conditions noted The diet in the early stage is restricted to albumin water and barley water, with strained chicken tea and meat juices

11 **Flavine and Brilliant Green in Treatment of Infected Wounds**—Taking the whole of the authors results in conjunction the following points emerge of all the substances examined, the compound flavine stands out as possessing the highest sum of desirable properties for therapeutic purposes, that is, great antiseptic power, along with relative nontoxicity toward phagocytosis and lack of irritating effect on epithelium The triphenylmethane compounds, especially brilliant green and crystal violet, are extremely active in the case of cocci, but toward *B coli* their bactericidal value is considerably lower On the other hand, flavine is much the most potent, of all substances investigated, toward both groups of organisms In the case of *B coli* suspended in serum, flavine is approached only by mercuric chlorid (although the latter is about ten times weaker), but the disadvantage of the mercury salt lies in the serious effect which it has in interfering with phagocytosis When tested on staphylococci, flavine is about twenty times more powerful than mercury perchlorid, and 800 times more powerful than phenol as a bactericide Flavine is diaminomethylacridinium chlorid which was originally prepared by Benda at the desire of Ehrlich, and was found to have a very marked therapeutic effect in trypanosome infections Flavine while of approximately equal antiseptic power to the other acridin compounds, is much less harmful to phagocytosis than the latter It is also less toxic It can be administered intravenously, and does not exert toxic action on any special organ Solutions more concentrated than 1 1 000 should not be administered, however, owing to the danger of causing agglutination of the red blood corpuscles A 1 1,000 solution (equivalent, on the basis of bactericidal concentration to an 80 per cent solution of phenol in the case of staphylococci) has been applied to the surface of wounds without causing pain or local irritation and the skin has not been harmed by its use In addition, there have been no local or general toxic effects, even when quantities of the solution have been kept in contact with the tissues for a considerable time or when injected into the tissues

The authors especially emphasize the possibilities in the direction of prevention of sepsis which would be likely to attend the use of flavine or brilliant green in recent wounds applied during that dangerous period between the infliction of the wound and the establishment of an adequate local defensive mechanism It has become the custom at the outpatient department of the Middlesex Hospital to treat all casualty cases by irrigating with a 1 1,000 solution of flavine, because the conclusion has been justified that a wound so treated will in all probability heal by first intention

12 **Id**—Upward of 150 cases have been treated by Ligat with flavine compounds, about 50 per cent of these being war wounds In the case of suppurating wounds the procedure followed has been to secure adequate drainage by free incision when necessary and then to irrigate with a 1 1,000 solution of the antiseptic in normal saline, finally the wound is covered with gauze soaked in the solution, and protective applied to prevent evaporation In case there has been a cavity it has been packed lightly with gauze soaked in the solution A considerable diminution in the discharge of pus may be expected at the end of twenty-four hours In wounds of moderate severity in which no foreign body is present and in which free drainage is secured the suppurative process may be expected to come to an end after four or five days treatment Any difficulty in obtaining free access for the antiseptic to the infected area was overcome so far as possible by syringing the solution into the wound cavity under slight pressure and in some cases flavine 1 1 000 was injected into the tissues and muscle planes by a cannula, no subsequent damage to the parts was observed Ligat has used considerable quantities both of brilliant green and flavine over prolonged periods in some cases injecting the latter antiseptic into the tissues He has never observed any toxic phenomena following their use

16 **Home-Made Bread Substitutes for Diabetic Patients**—Nicholson uses a bread made of peanut flour and casein It has the advantage of being very nice to the taste and can be cut readily into slices even as thin white bread The formula for making it is as follows peanut flour 8 ounces, casein 2 ounces a pinch of salt white of eggs 12 ounces The white of egg is beaten to a snow and then the other ingredients (previously lightly mixed) are slowly added The bread is baked in a sound oven in a tin

Glasgow Medical Journal

January LXXXVII No 1

17 Residual Urine in Senile Bladder with Special Reference to Conduct of Case so as to Postpone or Avoid Use of Catheter D Newman —p 1
18 Operative Treatment of Harelip and Cleft Palate J H Nicoll —p 16
19 Achylia Gastrica Simple or Benign Achylia W MacLennan —p 19

Journal of Tropical Medicine and Hygiene, London

January 1 XX No 1

20 Flagellate Frequenting Necks of Bottles J W S Macfie —p 1

Lancet, London

January 13 I No 4872

21 Mechanism of Serum Reactions H R Dean —p 45
22 State Octopus and Medical Profession E Cautley —p 50
23 Cases of Cerebrospinal Fever in Royal Navy August 1 1915, to July 31, 1916 H D Rolleston —p 54
24 *Four Cases of Hemiplegia Caused by Embolism Following Gunshot Wounds of Carotid Arteries L Colledge and J S Dunn —p 57
25 *Presence of Accessory Bacteria Food Factor in Nasal Secretion C Shearer —p 59
26 Cause and Prevention of Trench Foot C N Longridge —p 62
27 Case of Sarcoma of Mediastinum Invading Lung A G M Grant —p 63
28 Case of Large Omental Cyst in Child F C Pybus —p 63

January 20 No 4873

29 *Laminectomy in Gunshot Injuries of Spinal Cord Report of Cases C J Symonds —p 93
30 Gunshot Wounds of Abdomen During Siege of Kut C H Barber —p 98
31 Phenomena of Anaphylaxis S Wyard —p 105
32 *Case of Traumatic Rupture of Jejunum, Operation Recovery W S *Handley —p 109*

24 **Hemiplegia Caused by Embolism Following Gunshot Wounds of Carotid Arteries** —In each of the four cases cited by Colledge and Dunn the hemiplegia and cerebral disturbance were caused by occlusion of the middle cerebral artery or its branches In all four there was thrombus present in the carotid arteries in the neck, consequent on damage of the arterial walls and in each there were several inches of the internal carotid artery patent between that thrombus and the portion blocking the cerebral vessel Consequently the authors believe it justifiable to conclude that the blood continued to flow for a time, at least, in the wounded vessels, and that the occlusion of the cerebral arteries occurred by embolism Similar emboli were found in one instance in the branches of the external carotid also The damage to the large cervical arteries was in every case considerable In three there was actual perforation of the wall, in the fourth the trunk was found completely severed, but this, no doubt occurred secondarily by sloughing, after the vessel was fully thrombosed Hemorrhage was slight in these cases, in only one of them was ligature necessary The early appearance and completeness of the hemiplegia and the rapidly fatal issue in these cases—fifteen to seventy-two hours—resemble the effects of ligature of the common carotid

25 **Accessory Bacteria Food Factor in Nasal Secretion** —In dealing with numbers of cerebrospinal fever contacts Shearer noticed that the growth of the meningococcus was in some instances strongly influenced by the amount of nasal secretion transferred by the swab to the surface of the culture medium It was found from experiment that if a trace of dilute sterile nasal secretion was added to the surface of the culture medium, it brought about a rapid growth of the meningococcus when this medium was subsequently inoculated with this germ The growth is always many times the amount obtained on the same medium on planting out a similar quantity of culture in the absence of nasal secretion Shearer suggests that the action of sterile dilute nasal secretion in accelerating the growth of the meningococcus would seem to be entirely in the nature of an accessory food body or vitamin, as alone this secretion is quite incapable of supporting or stimulating the growth of this germ This conclusion is supported by its properties In addition to the meningococcus and its allies, it has been shown to accelerate the growth of the pneumococcus, *B typhosus, B coli-communis,* various fecal streptococci and a number of throat bacteria

29 **Laminectomy in Gunshot Injuries of Spinal Cord** —Symonds advocates using the old term "trepanning the spine" instead of laminectomy He reports cases and discusses their treatment

32 **Traumatic Rupture of Jejunum** —Handley's patient sustained a complete rupture of the jejunum from an accident, the wheel of an automobile passing over her abdomen 6 inches below the duodenojejunal flexure, the small intestine was found to be torn completely across An end-to end anastomosis was done The incision was closed after washing out the abdomen in every part with a large quantity of saline and introducing a pelvic drainage tube just above the pubes A considerable quantity of intestinal contents was found to be present in the pelvis The after-treatment included starvation diet for some days The patient made a complete and rapid recovery Solid food was first permitted about a fortnight after the operation Handley believes the favorable result of the case is largely to be attributed to his abstention from resection

Annales de Mêdecine, Paris

November December, 1916 III No 6 pp 567-677

33 *Idiopathic Dilatation of Bladder or Other Urinary Organs (La megavessie et l hydronephrose essentielle.) L Bard (Geneva) —p 567
34 *The Urologic Syndrome with Epidemic Cerebrospinal Meningitis II (Syndrome urologique de la meningite cerebro spinale a meningocoque de Weichselbaum) P Cazamian —p 576
35 Disturbances in Sweat Secretion with Lesions of Peripheral Nerves from War Wounds (Les troubles de la secretion sudorale dans les lesions des nerfs peripheriques par blessures de guerre) A Porak —p 596
36 War Psychoneuroses II G Roussy and J Lhermitte —p 619

33 **Idiopathic Dilatation of Parts of Urinary Apparatus** —Bard insists that essential and progressive dilatation of an organ is essentially the same process wherever it occurs, although the symptoms caused by the different organs involved vary so widely The trouble is some original local subnormal condition rendering it less resistant at this point to the normal pressure which the organ creates or undergoes from the fact of its own physiology He has published four previous studies of this idiopathic dilatation as affecting the glandular organs the alimentary canal, and the eyeball, and he here describes three cases in which the urinary apparatus was involved This idiopathic dilatation wherever it occurs is distinguished by the congenital origin, its development without apparent cause, the long tolerance, and the progressive evolution The recognition of the true cause of the symptoms permits rational treatment, by shutting off the organ if it can be spared and if not, by checking the further development by relieving the organ from all possible strain He states "The polycystic kidney is the manifestation of the trouble when it affects the glomerular-tubuli apparatus, but megabladder, megapelvis, and the more generalized form cystohydronephrosis, are likewise tangible evidence of this anomaly" He had one patient succumb to uremia from the last mentioned cause, nearly the entire urinary apparatus showing this progressive dilatation with secondary atrophy of the kidneys Nothing was found, even postmortem to explain the disturbances otherwise There was no edema till the last month The urine then contained from 1 to 3 gm albumin but no tube-casts The eye fundus seemed to be normal and the heart was not hypertrophied Micturition was inclined to be frequent and scanty His second patient was a man of 48 who succumbed to sudden cerebral hemorrhage after a few weeks of slight albuminuria and symptoms vaguely suggesting a cerebral tumor The bladder ureters pelvis and calices were found at necropsy very much dilated What was left of the kidney tissue seemed normal, as also the urethra

The remembrance of these cases enabled him to diagnose this condition in the third patient, a farmer of 56, who for several months had suffered from headache, nausea and visual disturbance with other signs suggesting uremia from chronic epithelial nephritis Palpation of the abdomen revealed a very large bladder, reaching to the umbilicus, but not causing any discomfort and there was nothing to suggest bladder or prostate trouble otherwise Micturition had been abnormally frequent day and night since childhood, but this pollakiuria had never been regarded as pathologic The desires were urgent but the amount of urine was small each time Acute pericarditis soon complicated the clinical picture, and necropsy confirmed the megabladder and the epithelial nephritis, but there was no hydronephrosis, simple stasis from idiopathic dilatation having evidently sufficed to induce the latent retention with advanced uremia, just as occurs with stricture or a prostatic obstacle Discovery of the megabladder may give the clue to the nature of the kidney trouble, but when the hydronephrosis exists alone, differentiation is dificult (Bard's study of infantile glaucoma as a manifestation of this tendency to idiopathic dilatations was summarized in these columns, April 8 1916, p 1172)

34 **The Urologic Findings in Epidemic Meningitis**—Cazamian regards the polyuria in epidemic meningitis as the reflection from a polydipsia of central origin as the disease takes a turn for the better He continues his study of the subject reporting here the findings as to specific gravity reaction color, aspect and odor, and content in the normal constituents of the urine The curves of their elimination run closely parallel rising under the influence of serotherapy as convalescence approaches Only the urates may show some variability It is evident he thinks that the toxins of the disease, acting on the nerve centers first check and then stimulate the elimination of these substances the latter phase being responsible for the meningitic diabetes" to which Loeper has called attention Cazamian is now studying the elimination of abnormal constituents of the urine and will report later

Archives des Maladies du Cœur, etc, Paris

December 1916 IX No 12 pp 521 589

37 Variations in Size of Heart with Cervical Rheumatism plus Sciatica (Les variations du volume du cœur dans le syndrome de rhumatisme cervical et de nevralgies sciatiques associees) P Nobecourt and E Peyre —p 521

38 *Estimation of Coagulation Time of Blood by Air Bubble on Spirit Level Principle (Estimation du temps de coagulation du sang in vitro" par le procede de la bulle d air) F Lenoble —p 539

38 **Test for Coagulating Time of the Blood**—Lenoble's method of estimating the interval before blood coagulates outside of the body is based on the principle of the spirit level, as already described in these pages Dec 30, 1916, p 2039 He here tabulates the findings in 100 different patients The shortest interval was in a case of meningeal hemorrhage, fifty-five seconds, the longest in a case of purpura in a tuberculous man six minutes and thirty seconds Coagulation was complete in a minimum of one minute and thirty seconds (in a case of meningeal hemorrhage) , the maximum eleven minutes, was in a patient with Friedreich's disease with congenital mitral stenosis and congenital cataract The average period for coagulation was two minutes and forty seconds the average interval before coagulation was complete was four minutes and thirty seconds The tube containing the blood and the bubble of air must be moved gently or the forming film is broken The bubble of air should be about the size of a pin head He uses for the tube Hayem s hematimeter

Bulletin de l'Académie de Medecine, Paris

January 2 LXXVII No 1 pp 1 54

39 *Requirement of Nitrogenous Foods in the Diet The Meat Question (Besoins de la France en azotes Question de la viande) E Maurel —p 42

40 Malaria in the Wounded from the Eastern Fighting Line (Paludisme et traumatisme chez les blesses de l'armee d Orient) L Moreau —p 48

41 Injury of the Ear from Explosions (Les mutilations de l organe auditif par les detonations Comment peut on les guerir?) Wicart —p 51

39 **Requirements of Nitrogenous Foods**—Maurel reaffirms that while nitrogenous foods are indispensable yet all the different nitrogenous foods can replace each other, weight by weight Whether they are of animal or vegetable origin is practically immaterial The intake of nitrogenous substances should conform to the amount used up and cast off in the vital processes An excess is as bad, if not worse than a deficit The average normal requirement is from 1 25 to 1 5 gm nitrogenous elements in a total of 35 calories per kilogram of the body weight He cites statistics which show that at Paris and Toulouse, about the largest meat-eating centers in France, during the last few years before the war, the daily amount of meat consumed per capita was 170 and 149 gm , representing only 30 and 27 gm nitrogen, that is, only about a third of the requisite nitrogen, and only a sixth and an eighth of the calories required The balance was made up with nitrogenous bodies from vegetables and fruit sources By drawing on these sources still more, the high cost of living can be materially reduced

Paris Médical

January 6 VII No 1 pp 1 36

42 *Intravenous Injections of Quinin in Treatment of Primary Malaria P Carnot and A de Kerdrel —p 2

43 *Treatment of Diphtheria Bacilli Carriers (Le traitement des porteurs de bacilles diphtheriques) M Labbe and G Canat —p 9

44 *Sciatica and Sciatic Paralysis Consecutive to Intragluteal Injections of Quinin J A Sicard L Rimbaud and H Roger —p 10

45 *Treatment of Suprarenal Insufficiency O Josue —p 13

46 Emetin and Arsenic Combined in Treatment of Amebic Dysentery P Ravaut and G Krolunitsky —p 18

47 Experimental Research on Treatment of Tetanus J Camus —p 24

48 *Treatment of Superficial Infectious Processes (Traitement des dermo epidermites microbiennes) H Gougerot —p 28

42 **Intravenous Injections of Quinin**—Carnot commends the intravenous route as simple and not at all dangerous, with the customary technic when it is a question of striking quick and striking hard The sterilizing effect of the quinin is reenforced by this route but even this is not effectual against the more resistant forms of the hematozoon the crescents in particular Only with series of partial sterilization are we able to cope with rebellious malaria, and periods of complete suspension are advisable to allow a new crop of the parasites to develop which may prove less resistant

43 **Treatment of Diphtheria Bacilli Carriers**—Labbe and Canat report very favorable results from insufflation of a powder made from the serum of horses previously injected with diphtheria bacilli killed by heat This powder was insufflated into each nostril of the diphtheria carriers four times a day One teaspoonful of the powder in the atomizer bottle serves for thirty insufflations In parallel series of patients treated this way and with ordinary antiseptic measures no diphtheria bacilli were to be found in thirty-five after an average of twenty-four days with the powder treatment while the intervals averaged over forty days in the other group The powder can also be used in tablet form

44 **Sciatic Paralysis After Intragluteal Injections of Quinin**—Sicard and his co workers state that in the last few weeks they have encountered ten cases of extremely painful sensory disturbances in the domain of the sciatic nerve with almost total paralysis of the leg—all the result of intragluteal injections of quinin with defective technic Five other cases have been under observation for several months, two of them have shown no improvement under a year's treatment The men of the latest group came from the Saloniki region and the injection had been made by nurses in seven of the cases Eight of the total fifteen are improving In several of the cases the reaction of complete degeneracy was pronounced in the muscles tributary to the sciatic nerve They warn to be guided strictly by the classic directions for such injections and, in case of the slightest doubt to make the injection in the thigh For intragluteal injections the patient should be seated In the sitting position the nerve lies at a point beyond the reach of the needle They advise to insert the needle above a horizontal line crossing the extreme end of the intragluteal furrow Any point above this line is safe

45 **Suprarenal Insufficiency**—Josue emphasizes that symptoms of suprarenal insufficiency should be sought for in every infectious disease It may also form a part of the clinical picture in alimentary intoxications, chloroform and salvarsan poisoning, and in heart disease with much enlargement of the heart, the *asystolie surrenale* characterized by hypertrophy of the heart with low blood pressure, weakness, white dermographism and signs of cardiac incompetency Whatever the accompanying circumstances, suprarenal insuf-

ficiency is always serious, liable to entail even sudden death Suprarenal treatment may give unhoped-for relief in the severe and malignant forms The extract of the total gland seems preferable when toxic phenomena predominate, while epinephrin is indicated more for cardiovascular disturbance The extracts can be given by subcutaneous injection or by the mouth He advises against the intravenous route unless extra rapid and potent action is necessary

Suprarenal extracts seem to stimulate the suprarenals to regenerate Hyperplasia of the suprarenal glands has been noted in rabbits after repeated intravenous injections of epinephrin, and the suprarenals were found relatively large at necropsy of a man with suprarenal asystole and cardiac insufficiency who had long been taking occasional systematic courses of suprarenal treatment The suprarenal disturbances finally completely subsided, and at necropsy several months later, the suprarenals weighed together 16 05 gm Josue regards it as probable that the prolonged suprarenal treatment had actually induced regeneration of these glands Epinephrin given by mouth has to be in a comparatively large daily dose but fractioned into small doses throughout the day, trying to keep the patient constantly under its influence This can be long kept up without inconvenience, some of his patients have taken 3 mg of epinephrin (adrenalin) daily for a month six weeks or longer, without any disturbance therefrom In acute cases he prescribes 0 5 c c of the 1 1 000 solution in a little water, from two to ten times a day For subcutaneous injection, his dose is 0 5 c c of the 1 1,000 solution repeating often Doses of 1 mg can be kept up for a month or more These injections are generally painful Or 1 mg of the epinephrin can be added to 250 or 500 c c of physiologic salt solution Addition of 0 01 c c novocain prevents pain The slowness with which this is absorbed is an advantage

In acute infectious disease, suprarenal treatment may ward off trouble In typhoid, for instance, when the pulse grows rapid and weak, from 2 to 4 mg of epinephrin, fractioned into four or eight doses, may ward off mishaps When toxic phenomena are pronounced, as in diphtheria, he gives the total extract by the mouth and injects the epinephrin-novocain solution subcutaneously Carnot has reported good results in pernicious malaria from subcutaneous injections of the epinephrin-novocain saline, supplemented by intravenous injection of quinin This technic proved effectual without offering the dangers of intravenous epinephrin treatment

48 **Microbian Dermo-Epidermitis**—Gougerot has coined this term to denote the extensive infectious processes in the skin, especially the epidermis, which are so common among the soldiers now, and so liable to run a chronic course if eczema or trophic disturbances or other causes interfere with the early healing He says that painting the skin with a 1 50 or 1 10 solution of silver nitrate is the best antiseptic and cauterizer, promoting healing and preventing itching, and it should be applied in all cases Rest in bed the foot on a higher plane than the inguinal region, the foot and toes exercised, with light massage, are important adjuvants He gives a number of formulas for mercurial pastes, graduated for the serous, the oozing and the eczema-like cases Pastes are better than salves, and oils or creams are better than petrolatum

Presse Médicale, Paris

December 28 1916 XXIV No 72 pp 601 608

49 *Treatment of Tuberculous Pericarditis with Effusion by Insufflation of Air P E Weil and Loiseleur—p 601
50 Treatment of Chronic Pleural Empyema (Traitement des fistules pleurales) V Pauchet—p 604
51 Self Feeding Irrigator for Carrel Dakin Method of Treating Wounds T Tuffier—p 608

49 **Insufflation of Air in Treatment of Tuberculous Pericarditis**—Letting air into the pleura to take the place of the effusion has much simplified the treatment of pleurisy It is possible by this means to release as much as 3 or 4 liters of effusion and replace it with air at one sitting The air counteracts reproduction of the effusion and attenuates the tuberculous process, transforming a hemorrhagic or seropurulent into a merely serous effusion Weil and Loiseleur have been applying this same technic in treatment of pericarditis, and have obtained such favorable results that they commend for general adoption this method of treating tuberculous pericarditis with effusion The effect was the production of a pneumopericardium and hydropericardium, which can be watched and followed with the Roentgen rays The latter permits paracentesis with an ease and precision hitherto unknown They found it necessary to complete the withdrawal of the effusion before injecting the air They used ordinary air without special filtration and found the benefit even more striking than in pleurisy In the case of a child of 14, the procedure was repeated five times The intervals were eight, fifteen, thirty-three and forty-eight days, demonstrating the progressive improvement They compare the action of this pneumopericardium with that of induced pneumothorax, the principle and effect being practically the same The patient recovers without symphysis, preexisting adhesions being generally broken up under the pressure of the air Operative measures are superfluous, but benefit was derived from exposure of the abdomen and trunk to the direct sunlight, beginning with five-minute exposures and lengthening them to a maximum of forty minutes a day The injection of the air in an amount equal to that of the fluid tapped, caused no pain nor dyspnea nor heart symptoms in the cases described Only once was there a convulsive cough, the child had long been subject to this cough and the injection of air transiently aggravated the tendency on this occasion Several roentgenograms show the exact findings

Berliner klinische Wochenschrift

December 4 1916 LIII No 49 pp 1309 1332

52 *Successful Removal of Spinal Tumor Two Cases (Ueber erfolgreiche Geschwulstoperationen am Hals und Lendenmark) H Oppenheim E Unger and E Heymann—p 1309
53 No Evidence of Infectious Origin in Fifteen Cases of Acute War Nephritis (Aetiologie der Kriegsnephritis) H Beitzke and Seitz—p 1313
54 *Retention of Nitrogenous Waste in Body Fluids in Nephritis (Ueber stickstoffhaltige Retentionsstoffe im Blut und in anderen Korperflussigkeiten bei Nephritikern) M Rosenberg—p 1314
55 *Tests for Albuminoid Bodies in the Air (Lufthygienische Untersuchungen Nachweis von eiweissartigen Korpern in verbrauchter Luft) W Weichardt and K Wiener—p 1316
56 Control Roentgen Examination of the Heart (Apparat fur Kontrollaufnahmen des Herzens) W Preminger—p 1319
57 Clinical Significance of Irregularity of Heart Action (Die klinische Bedeutung der Unregelmassigkeiten der Herztatigkeit.) P Schrumpf—p 1320

December 11 No 50 pp 1333 1356

58 *Treatment of War Neuroses (Neue Methoden und Gesichtspunkte zur Behandlung der Kriegsneurosen) L Mann—p 1333
59 *Laws Regulating Growth and Nutrition in Man (Ueber die Wachstums und Ernahrungsgesetze des Menschen) P Riebesell—p 1338
60 Serous Periostitis Following Trauma O Heinemann—p 1339
61 Apparently Favorable Influence on the Teeth of War Diet (Zahnkrankheiten und Kriegsernahrung) Schaefer—p 1339
62 Fracture of Exostosis on Lower Epiphysis of Femur L Meyer—p 1340
63 Pathologic Chemistry and Metabolism in Rachitis E Schloss—p 1340

52 **Spinal Cord Tumors**—Oppenheim s first patient was a woman of 36 who recuperated practically completely after removal of a fibroma 10 5 cm long extending along the spinal cord over the entire cervical region The findings in the cerebrospinal fluid aided in the diagnosis, but in two other cases of the same kind the fluid was normal The case is the most striking one of which he knows to date demonstrating the amount of compression which the cervical spinal cord can stand without irreparable injury In the second case, a myxolipoma was removed at the upper lumbar and lower thoracic vertebrae This patient was a girl of 16 whose complaints of abdominal pain had led to a useless appendicectomy a year before The Roentgen and blood findings were normal, but the pains kept increasing and spread through the abdomem, lumbar region and left leg They were regarded as imaginary for a long time, but finally the girl was treated with extension for eight weeks It gave transient relief but then the pains grew worse, intensified by sneezing, coughing or laughing, and finally the left leg showed signs of weakness, with some paresis and atrophy of the left quadriceps, and

absent knee jerk while slight clonus of the foot could be elicited On this basis the tumor of the lumbar spinal cord was diagnosed and successfully removed Reexamination several months later showed completely normal conditions except for slight weakness in lifting the left leg, slightly interfering with climbing stairs or a hill

In conclusion he mentions some cases of chronic myelitis in which the symptoms deceptively simulated those of a tumor Laminectomy in such cases is only exploratory and may whip up the disease In another case a small tumor was correctly diagnosed and removed but the patient succumbed to weak heart action a few hours later The pulse had been somewhat accelerated but not enough to warn of imminent danger In another case an obese woman of 65 with exophthalmic goiter presented symptoms of spinal-cord tumor but the sanatorium physician mistook them for hysteria and insisted on exercise He also burnt the patient during electrotherapy as her loss of sensation in the skin was not recognized A consultant diagnosed osteomalacia Oppenheim traced the symptoms to a tumor compressing the spinal cord It was easily removed but proved to be malignant, and the patient soon succumbed to weakness of the heart Even allowing for all such mishaps, tumors compressing the spinal cord seem to be one of the most grateful fields of medical-surgical endeavor

54 **Retention of Nitrogenous Waste in the Various Body Fluids**—Rosenberg tabulates the findings in regard to urea, creatinin and indican in the blood and ascitic fluid or pleural effusion in twenty-eight cases of various morbid conditions with ascites and in twenty-two with pleural effusion When there was azotemia, the urea content of the effusion in the pleura or peritoneum was from 80 to 100 per cent that of the serum The creatinin content was up to 20 per cent higher than that of the blood, while the indican content paralleled that of the blood In a third table the findings in the blood and cerebrospinal fluid are compared The latter contained from 56 to 96 per cent as much urea as the blood, but only from 37 to 75 per cent creatinin He never found indican in the cerebrospinal fluid even with the highest indicanemia

55 **Albuminoid Bodies in Expired Air**—A man blew through a cotton-stoppered crook-shaped tube into a wash-bottle containing 3 c c distilled water The water was then rapidly evaporated and chemical tests applied to the residue From this and other tests described, the presence of albuminoid bodies in the expired air was unmistakably established The amount averaged 0 000015 mg for each inspiration during quiet breathing representing a total of 0 05 mg for the twenty-four hours The proportion during speaking averaged 0 07 mg for the twenty-four hours Analyses of the findings showed a content of 0 02 mg amino-nitrogen in the air blown into the tube during twenty-four hours Tests in telephone cabinets showed marked enrichment of the air, but they also showed that the air seems to spontaneously cleanse itself About 2,200 liters air in a telephone cabinet were aspirated through a wash-bottle twelve hours after termination of the other tests The findings then were practically nil, demonstrating a self-cleansing process

58 **War Neuroses**—Mann analyzes the various methods of treatment of war neuroses and describes some of his own successful cases The hysteric manifestations in these war neuroses are the consequence of some powerful emotion which has induced, as he says, 'a physopsychic concussion" The principle of treatment for certain cases is to induce some violent new commotion which will crowd the former one to one side A pile of iron filings can be partially separated by shaking the paper holding them and then they can be reassembled in a pile by shaking again Kaufmann has been remarkably successful with his *Ueberrumpelung* method, combining startling electric measures with suggestion and exercise, the orders all in a crisp military tone and keeping up the sitting until the man is cured even if it takes two hours or more Mann has succeeded with somewhat milder means, in some cases with several months of rest alone No one method can apply to all

59 **Laws of Growth and Nourishment**—Riebesell qualifies Wamser s laws as great progress He seems to have established that the growth—the increase in weight in a given period—is inversely proportional to the gross weight (*Rohgewicht*), and that growth occurs more rapidly the more remote the end of the period of development He expresses this by formulas and Riebesell deduces from them and the individual proportions a set of figures representing the food requirements at different ages and weights

Correspondenz-Blatt für Schweizer Aerzte, Basel

December 23 1916 XLVI No 52 pp 1729 1760

64 The Quantitative Determination of the Physiologic Variables C de Montet—p 1729 Concluded in No 53, p 1761
65 Fatal Cumulative Toxic Action of Prolonged Use of Veronal—R Schubiger—p 1741

December 30 No 53 pp 1761 1792

66 Extract of Blood Platelets Injected to Aid the Filling Up of Hole Left by Resection of a Fibrosarcoma of the Femur A Fonio—1772

Medizinische Klinik, Berlin

December 10 1916 XII No 50 pp 1303 1328

67 Injury of Internal Organs from Contusions (Die Kontusionsverletzungen innerer Organe) A Dietrich—p 1303
68 Dysentery with Lamblia (Choleraahnliche Brechruhr mit Lamblien) R Muller—p 1307
69 Mechanical Hyperexcitability of Muscles (Ueber das Muskelphanomen der Soldaten im Felde und seine Stellung zum idiomuskularen Muskelwulst) E Mayerhofer—p 1308
70 *Sausage Poisoning (Ueber Botulismus) Schede—p 1309
71 Modification of the Hemolytic Factors in the Blood Serum of Syphilitics (Ueber die Veranderung der hamolytischen Komponenten bes des Komplements im Blutserum der Syphilitiker) V Kafka and E Haas—p 1312
72 Interrupted Biologic Method of Purification of Drinking Water (Der biologische Klarprozess) W Gemund—p 1314

70 **Sausage Poisoning**—Schede describes an attack of botulism (*botulus* is Latin for "sausage,") in a family of five members who ate from a raw ham The pig had been slaughtered on the farm six months before About eighteen hours afterward the symptoms of botulism became apparent in the mother and two boys of 10 and 12, and the woman and the older boy died, the other recovered The father who had eaten most freely of the ham was not affected by the poisoning The only gastro-intestinal disturbances were nausea and vomiting which the older boy suppressed Extreme prostration, dryness of the mucous membrane, difficulty in swallowing and in speaking, diplopia, ptosis, absence of the knee-jerk, paresis of the bladder sphincter and other symptoms indicating severe involvement of the motor and secretory regions in the medulla oblongata were the more striking manifestations until the respiration center began to suffer The two who died succumbed to arrest of respiration Diphtheria antitoxin was given in two of the cases but without result, an antibotulism serum has been made, but it could not be procured for these cases Pilocarpin has been recommended to combat the dryness of the mucous membranes, and Schede tried it in two cases but obtained alarming results as it induced such profuse secretion of mucus in the air passages He gave 0 01 gm subcutaneously but the boy nearly suffocated from the profuse secretion that followed in the air passages, which he was unable to cough up With oxygen, heart and vessel tonics, and lowering the head, he was tided past this mishap The tenacious constipation was combated with enemas as drug purgatives might prove dangerous if they should be long retained owing to the vagus paralysis inducing the obstipation Burger advocates lavage of the stomach, even when the intoxication has been long under way On account of the paralysis of the stomach scraps of the poisonous food may be washed out with the lavage days afterward Emetics are liable to do harm on account of the paralysis of the swallowing muscles and loss of reflexes Ample nourishment should be provided, it is best given through a stomach tube Oxygen was found a great relief by one of Schede s patients Schneidemuhl commends potassium iodid on account of its efficacy in a certain paralytic affection in cattle Schede gave it to the boy that recovered, and he says that it is certainly worth a trial in every case of sausage poisoning He mentions parenthetically that the *Bacillus botulinus* finds favorable conditions for its proliferation not only in ham and sausage but also in canned beans in herrings and the like He adds that canned goods should be cooked again before serving

Munchener medizinische Wochenschrift, Munich

December 5 1916 LXIII No 49 pp 1717 1748

73 *Syphilis and Tabes from the Ophthalmologic Standpoint L Heine —p 1717
74 Improved Tube for Deep Roentgen Work (Die geerdete Rontgenrohre eine Spezialrohre fur Tiefenbestrahlung) H Wintz —p 1719
75 *Rectal Gonorrhea in Children G Stumpke —p 1720
76 *Treatment of Hard Edema A Nagy —p 1721
77 The Pituitary Body as Regulator of Diuresis and of Specific Gravity of the Urine H Bab —p 1721 Continuation
78 Marriage and Descendants of Those who were Backward or Defective Children (Hilfsschule, Ehe und Nachkommenschaft) B Laquer —p 1723
79 Bacillary Dysentery (Zur Klinik der Bazillenruhr) W v Starck —p 1733
80 Treatment of Abscess in the Brain (Behandlung der Hirnabszesse mit bes Berucksichtigung des Hirnodems) R Klapp —p 1734
81 Findings with Abdominal Wounds (Ueber Befunde bei intra und retroperitonealen Darmverletzungen) R Lenk —p 1735
82 Splint Dressing for First Aid to Fractured Femur (Schienenverband zur Versorgung der Oberschenkelschussfrakturen in der vorderen Linie) v Stubenrauch —p 1735
83 Apparatus for Treatment of Contracture (Zur Dauerapparatbehandlung von Nervenverletzungen) O Stracker —p 1738
84 Plaster Casts with Hackenbruch s Portable Extension Devices (Ueber die Behandlung der einfachen und Schussknochenbruche mit Hackenbruchschen Distraktionsklammern) Frick —p 1739
85 Hypertonic Saline in Treatment of Atony of Vessels (Behandlung der Gefassatonie mit hypertonischer physiologischer Salzlosung) F Hercher —p 1740
86 Giant Magnet Part of Field Roentgen Equipment (Ein Behelfsriesenmagnet in Verbindung mit dem Feldrontgenwagen) Bartels —p 1742
87 Bandage to Overcome Paralysis of Serratus Muscle Neumeister —p 1743
88 Improvised Medicomechanical Apparatus J Fuchs —p 1744
89 Draining the Trenches and Shelters (Zur Hygiene des Stellungskrieges I Hygiene des Unterstandes) K Hannemann —p 1745 (Einige praktische Erfahrungen bei Sanitatsunterstanden) Guth —p 1746
90 Contaminated Catgut (Kriegskatgut) Burgkhardt —p 1747

73 **Syphilis and Tabes from Ophthalmologic Standpoint** —Heine reviews what has been written on this subject saying that the frequency of eye troubles in syphilis can be estimated better by the statistics from general hospitals, etc rather than from ophthalmologists records In the Kiel eye clinic the optic nerve was affected in two thirds of fifty syphilitics, and there were also pupil disturbances in two-thirds while in half the cases there were disturbances in the external ocular muscles Choked disk, optic neuritis and neuritic atrophy speak for syphilis rather than tabes Uhthoff's report on 100 cases of cerebral syphilis stated that simple atrophy of the optic nerve was found in 10 or 15 per cent of all cases of tabes, but was rare in syphilis

75 **Rectal Gonorrhea in Children** —Stumpke has had eighty-eight little girls with gonorrhea in his service at Hanover-Linden, including seven infants Since 1913 rectal gonorrhea has been found in 55 9 per cent of the fifty-nine examined The rectal involvement is extremely difficult to cure, in a number of cases the findings in the rectum were still positive months after the vagina and urethra had been restored to normal In a few cases the positive findings at first were followed by constantly negative, suggesting accidental or casual contamination The only manifestations of gonorrheal processes in the rectum are swelling of the extremely red mucosa at the point affected No tendency to ulceration was ever noted

76 **Hard Edema** —Nagy reports a case which illustrates how lymph can become extravasated and cause disturbances like those of a hematoma Also how prompt benefit follows incision into the fascia and ligaments, supplemented by elastic compression when the painful stage is past

Wiener klinische Wochenschrift, Vienna

November 23 1916 XXIX No 47 pp 1483 1514

91 *Causes and Treatment of Bladder Incontinence and Enuresis Nocturna in Soldiers A Fuchs and S Gross —p 1483
92 Prognosis of Abdominal Wounds (Zur Prognose der Schussverletzungen der Baucheingeweide) P R von Walzel —p 1487
93 Hexamethylenamin in Treatment of Malaria (Urotropin als Malariaheilmittel) S Plaschkes and M Benkovic —p 1495
94 Syphilitic Disease of the Aorta L v Korczynski —p 1498 Continuation
95 Treatment of War Fractures of Long Bones (Zur Behandlung der Schussbrüche langer Knochen im Reservespital des Hinterlandes) F Burian —p 1511

November 30 No 48 pp 1515 1546

96 *Diagnosis and Treatment of Malaria W Zweig and J Matko —p 1516
97 Experiences with Gas Gangrene (Gasbrand) H H Heidler —p 1522
98 Modified Nail Extension (Erfahrungen mit der Klammerextension nach Schmerz) W v Sacken —p 1527
99 Case of Progressive Spinal Atrophy of Muscles P Leitner —p 1529
100 Acute Typhoid Urethritis J Saphier —p 1530
101 *Enrichment of Urine with Bile for Bacteriologic Examination (Ueber Gallenanreicherung von Urin) A Trawinski —p 1531
102 Lead Poisoning from Painted Boards Used as Firewood (Eine toxikologische Mitteilung) L Stefanowicz —p 1531
103 Syphilitic Disease of the Aorta L v Korczynski —p 1532 Continuation
104 Treatment of Gastritis in Soldiers (Ueber die im Felde vorkommenden Magenerkrankungen, ihre Behandlung und militararztliche Begutachtung) T Frankl —p 1543

91 **Treatment of Incontinence of Urine and Enuresis** —Fuchs and Gross comment on the remarkable frequency of incontinence of urine among the soldiers on active duty A history of trauma, getting chilled, or infectious disease was found in every case, and examination of the bladder showed that the body was in a state of maximal contracture The sphincter region seemed to be normal It was impossible to inject more than a small amount of fluid into the bladder, anything beyond this caused much pain These and other facts observed suggested that local heat might relieve the contracture and this was confirmed by experience Prompt relief followed and the incontinence was conquered by rinsing out the bladder with warmer and warmer fluids, reaching a temperature of from 45 to 48 C The idea that paralysis of the bladder is always responsible for incontinence thus has to be abandoned Under the influence of the hot irrigation the contracted musculature relaxes and the incontinence is cured The incontinence has not returned in any of the cases during the months since this simple measure proved effectual They suggest a trial of it in tabetic incontinence or with other spinal processes In the ten cases of incontinence after trauma a complete cure was realized in six and great improvement in three, two were cured and four improved in the eight cases traceable to getting chilled and four cured and two much improved in ten cases of incontinence following cholera typhoid or other infectious disease In five cases of pollakiuria with relative incontinence a complete cure was speedily realized in all They injected from fifteen to twenty syringefuls at one sitting repeating the fifteen or twenty minute sitting daily The incontinence was of less than four weeks' standing in all, and the success was more constant in the more recent cases Enuresis nocturna seems to be due to some congenital disturbance in the innervation, some insufficiency of the lower segments of the spinal cord, and the hot rinsing of the bladder has no effect on it

96 **Malaria in Austrian Army** —Zweig and Matko state that as the war has taken the troops into various malarial regions the number of cases of malaria is constantly increasing Quinin prophylaxis has not proved as effectual as had been hoped In the Italian army the drop from 50 per thousand cases of malaria in 1900 to 5 per thousand in 1910 is attributed to the systematic quinin prophylaxis In the Austrian army it was not applied early enough and the technic may have been imperfect When malaria is once installed a course of quinin treatment for at least two months is necessary Even the slightest temperature above normal is a warning that the malaria has not been conquered Measures to bring on an attack, hoping thus to disclose the latent carriers, were always unsuccessful The only safe way is to treat all for two months as if certain they are carriers In nine of their recent 100 cases, after a single severe attack there were no further symptoms, although no treatment had been applied These persons must have had natural defensive bodies which conquered the infection at the start

101 **Bile Enrichment of Urine** —Trawinski tabulates his findings showing that positive findings were obtained in 50 per cent more of the tests when bile was mixed with the

urine Of the 421 specimens of urine pathogenic germs were found in over 22 per cent but this proportion rose to over 33 when 15 c c of beef gall was added to each 3 c c of urine

Pediatria, Naples

December 1916 XXIV No 12 pp 705 748

105 Formation of the Giant Cells of the Glomeruli in Tuberculosis of the Kidney A Lilla —p 705
106 *Influence of Antimony on the Fever Curve in Internal Leishmaniasis R K Marinucci —p 717
107 *Serum Reactions in Cerebrospinal Meningitis B Romano —p 728
108 Inflammation of Sublingual Gland as Sole Appreciable Local Manifestation of Mumps (Caso di sublinguite pura da orecchioni) E Modigliano —p 733

106 **Antimony in Internal Leishmaniasis** —Marinucci describes two typical cases out of more extensive experience to show the effect on the fever curve of intravenous injection of antimony and potassium tartrate The children were 2 and 4 years old and had been having irregular fever for nine and four months, with pallor, loss of weight and protuberant abdomen This drug intravenously and sodium acetyl p-aminophenyl tartrate subcutaneously seem to act by their chemical action, destroying the parasites like the natural process from production of antibodies These drugs also have a hemolyzing action but this is secondary, although it can be traced in the fever curve

107 **Serum Reactions in Epidemic Meningitis** —Romano gives tabulated details of his tests The deviation of complement with serum and cerebrospinal fluid was inconstant, but occurred more frequently after the sixth day of the disease while the Vincent and Bellot test with the cerebrospinal fluid gave positive findings earlier, sometimes the first day of the disease In the six cases tabulated it was positive in four, and these were at the third to the seventh day of the disease

Policlinico, Rome

January 1 XXIV No 1 pp 1 40

109 The Spirocheta Pallida in Central Nervous System of Fetus at Term of Mother with Paralytic Dementia A Giannelli —p 3
110 Lessons as to Management of the Sick and Wounded Learned as the War Has Progressed (Insegnamenti della guerra sui servizi sanitari campali) G Mendes —p 5

Brazil-Medico, Rio de Janeiro

December 16 1916 XXX No 51 pp 401 408

111 Contradictory Facts in Antitoxin Treatment of Diphtheria O Clark —p 401 Continuation
112 Roentgen Treatment of Uterine Fibromyomas J de T Dodsworth —p 404

Siglo Medico, Madrid

December 23 1916 LXIII No 3289 pp 817 832

113 Intermittent Hysteric Tremor (Temblor histerico intermitente de paroxismos periodicos) E F Sanz —p 818
114 Relations between Croup and Pneumonia in Children (Relaciones entre el crup y la bronconeumonia en los ninos) E Suner y Ordonez —p 829 To be continued

Russkiy Vrach, Petrograd

1916 XV No 43 pp 1009 1032

115 Traumatic Aneurysms Nature and Treatment A P Krimoff —p 1009
116 *Practical Suggestions in regard to Salicylic Medication (Nieskolko prakt zamiechanii po voprosu o primienenii salitsilovago natra i salitsilovoi k ti) V L Yanovsky —p 1011
117 Principle for Continuous Traction of Semiflexed Leg (O polusognutom polozhenii nizhnoi konechtosti pri primienenii postoyannago vityazheniya) K T Vegner —p 1014
118 Treatment of Fracture of the Femur According to the Russian and Foreign Literature Compared with Results in Sixty Seven Personal Cases (O liechenii perelomov bedrenoi kosti) M L Nobel Oleinikova —p 1017 Concluded
119 Cooperation of National and Local Medical and Sanitary Forces to Promote Public Health Matters V I Gondzikevich —p 1026 Concluded

116 **Salicylic Medication** —Yanovsky expatiates on the importance of giving the exactly proper dose of any drug we are using Any excess is liable to have a *toxic action* and counteract the therapeutic influence, while with too small a dose we not only deprive the organism of the aid it is in our power to bestow, but the drug in small amounts may have some unanticipated action Too many administer drugs in rather haphazard fashion, not appreciating the importance of exact individual dosage Yanovsky discusses here salicylic medication, saying that the proper dose of sodium salicylate in all cases of articular rheumatism and in severe muscular and tendon rheumatism is from 2 5 to 4 or 5 gm in the twenty-four hours If this does not bring improvement in three days, he changes to pure salicylic acid treatment, giving 0 6 gm four times a day By these means he has treated not less than 200 patients with rheumatism, and they proved effectual in all but three or four, although many of the cases in soldiers were exceptionally serious He reports a few typical cases of acute rebellious and recurring articular rheumatism and of persisting endocarditis to illustrate the prompt efficacy of the salicylic acid alone or after failure of other methods of salicylic medication In the most serious cases he supplemented the four powders of 0 6 gm salicylic acid during the day with 0 4 gm acetylsalicylic acid

The fear of injurious action on the heart has no foundation in fact, it is a traditional survival of the unfortunate experiences with the salicylates when they were first introduced many years ago, and they were given in enormous doses and for all kinds of troubles In reference to any injurious action on the kidneys he cites some recent experiences with epidemics, especially one hospital epidemic of infectious sore throat in which there was a complicating hemorrhagic nephritis This occurred just as regularly in those who had not been given salicylic medication as in those who had He found that pure salicylic acid is no more liable to induce disturbances in the digestive tract than any of its preparations while it is more effectual and more reliable He begins with this and then, as the patient improves, he changes to sodium salicylate For endocarditis he gives 1 or 1 5 gm during the twenty-four hours In conclusion he commends for local application Bourget's salve as effectual and nonirritating although it contains 25 per cent salicylic acid The formula is 12 5 parts salicylic acid, 8 parts turpentine and 42 parts lard It is inexpensive and colorless, rubs in easily, and does not turn rancid

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

December 9 1916 II No 24 pp 2061 2132

120 *The Work of the Railroad Physician (De positie van den spoorwegarts) L W H T Willink —p 2064
121 *Goiter in the Netherlands (Over het voorkomen van struma) B D G Kappenburg —p 2079
122 *Local Anesthesia for Children (Plaatselijke gevoelloosmaking bij kinderen) E H La Chapelle —p 2085

120 **The Railroad Physician** —Willink's article was the opening address at the recent conference of the organized medical officials of the railroads of the Netherlands He discussed in turn the three aspects of the work of the railroad physician as clinician and surgeon, in certifying to the fitness of applicants for positions, and as the confidential adviser of the railroad company Improvement in contract conditions was one of the main objects of the conference, and Willink remarked that there was great room for improvement But he rejects the principle of free choice of a physician for railroad employees, mentioning a number of reasons why it is unwise under these circumstances Among them he notes that it would be impossible to give free passes on the railroad to all outside physicians, while ample facilities for reaching the sick employees are indispensable Another reason is that the contract physician feels his responsibility to the company and when he finds a block-signal man, for instance, suffering from overwork and nervousness, he not only orders him to take a vacation and rest, but he telephones the man higher up to ensure that his directions are enforced

121 **Goiter in the Netherlands** —Kappenburg recently reported that a goiter was manifest in 11 per cent of 493 nurses or attendants at the public hospital of Utrecht Recruiting officers have also called attention to the prevalence of goiter among recruits from Utrecht Examination of other nurses elsewhere revealed a total of 95 with goiter out of 611, that is, nearly 16 per cent A tabulation of their home towns shows anew the prevalence of goiter in those from the

[illegible]

Utrecht district, with Amsterdam a close second But in two other river districts the proportion was still higher, namely, 6 4% and 9 2% nurses with and without enlarged thyroids The figures show further a preponderance of goiter in the *nurses who have served in the care of the insane* Does this tend to induce goiter, he asks, or are nurses with a predisposition to goiter attracted more to the care of the mentally diseased?

122 **Local Anesthesia for Children**—La Chapelle reviews his experience with various operations done on children under 7 with local anesthesia alone The list includes 9 herniotomies on children under 4 There were no mishaps or drawbacks, and no *restlessness except at the first prick of the* needle and this was no more than is observed at the outset of general anesthesia On the whole, his impression is that local anesthesia is about as applicable to children as to adults Even with the latter it is advisable to divert the attention from the operation The advantages of avoiding general anesthesia are likewise the same as for adults He mentions in proof of this that one boy of 10 whose appendix was removed under local anesthesia had an infant brother apparently healthy, who died a few hours after a small nevus on the forehead had been excised under general anesthesia

Hospitalstidende, Copenhagen

December 13 1916 LIX No 50 1205 1228

123 *Experimental Research on Suture of a Bronchus and Drainage of the Pleura (Experimentelle Studier over Bronchiesutur og Pleuradrainage) Γ Nielsen —p 1205 Commenced in No 49 p 1181

December 20 No 51 pp 1229 1252

124 *Day Urine and Night Urine (Dag og Naturin) K Jespersen —p 1229

December 27 No 52 pp 1253 1276

125 Two Cases of Progressive Wasting Away of Fat Tissue (To Tilfælde af Lipodystrophia progressiva) A V Neel —p 1253

123 **Suture of Bronchus and Drainage of the Pleura**—The work was done on twenty-four dogs, as is related in detail The device with which the pleura was drained is also illustrated and its advantages over other methods for the purpose are emphasized It can be applied and removed without an anesthetic while it permits the wearer to be up and about

124 **Day Urine and Night Urine**—Jespersen's study of this subject fills twenty pages and reproduces seven typical charts showing the findings over periods up to nine days They show that less urine is secreted at night than during the day, but the specific gravity is higher at night as also the percentage of nitrogen The relative and absolute proportion of sodium chlorid is less at night, as also the absolute nitrogen content of the urine, while the relative proportion is higher at night than in the daytime

Hygiea, Stockholm

December 31 1916 LXXVIII No 24 pp 1809 1916

126 *Tubercle Bacilli in the Feces of Children with Tuberculosis of the Air Passages (Bidrag till frågan om det diagnostiska vardet av pavisandet av tuberkelbaciller i fæces hos barn med tuberkulos i respirationstractus) J Leffler —p 1809

127 Complications with Incarcerated Hernia Three Cases (Tre sallsynta fall av Hernia incarcerata) G Gussander —p 1831

126 **Tubercle Bacilli in Children's Stools**—Leffler analyzes the scanty literature on the finding of tubercle bacilli in the stools of children with a tuberculous process in the air passages He examined 110 children at the municipal tuberculosis sanatorium and found tubercle bacilli in the stools in 16 4 per cent The feces were examined with the Reh ether technic and also with the Engleson method, the former proving most reliable The cases are tabulated for comparison of the clinical data, and a brief summary of each of the positive cases is given including four infants and five children over 12 and three *respectively* 6 8 and 9 all with advanced physical changes and bad general condition Others with positive findings were three older children with similar advanced lesions but the general condition still good, and four with minor lesions and good general condition Five of the older children *with advanced lesions* had tubercle bacilli in the sputum, and one had considerable expectoration but no tubercle bacilli None of the other children expectorated The tables show thus that the conditions in older children are much the same as in adults Only six infants were examined, tubercle bacilli were found in the stools of all but one, con*firming the diagnosis of progressive pulmonary tuberculosis* These experiences confirm the rarity of "open" tuberculosis in children and testify against the assumption that the tubercle bacilli get into the stools by way of the blood If this were the case, the *positive findings* would probably have been more numerous

Ugeskrift for Læger, Copenhagen

December 14 1916 LXXVIII, No 50 pp 2171 2212

128 *Chronic Habitual Constipation (Bidrag til den kroniske habituelle Obstipations Klinik og Røntgenologi III) T E H Thaysen —p 2171 Commenced in No 49 p 2113

December 21 No 51 pp 2213 2336

129 Chronic Lacrimation and Its Treatment (Det kroniske Taareflod Med Henblik paa Dacryocystorhinostomien og Exstirpation af Glandula lacrymalis) B Strandbygaard —p 2213

December 29 No 52 pp 2337 2350

130 *Influence of Thyroid Treatment on Standard Metabolism (Thyreoidinets Indflydelse paa Standardstofskiftet) M Krogh —p 2337

128 **Chronic Constipation**—Thaysen devotes his third article on this subject to what he calls *Ascendensobstipation*, the feces sojourning abnormally long in the ascending colon and *first part of the transverse colon* There may be excessive or deficient contractions of this part of the bowel In thirteen of Thaysen's twenty-two cases of this ascending type of chronic constipation the stasis was restricted to the ascending colon, and the Roentgen findings showed the atonic or spastic conditions responsible for the constipation He reproduces some of the roentgenograms In the other cases the roentgenograms showed stasis of feces along the ascending colon and beyond Adhesions may be responsible for stasis in the descending colon but this seems to occur but rarely, the trouble here being of functional nature in the majority of cases, either spasmodic contraction or atony or a combination of both Nine of his twenty-three cases were of the spastic type and even in the others there were occasionally symptoms suggesting spasmodic contraction He calls attention to the fact that in six of the nine spastic cases the pains were either exclusively or much stronger in the left than the right side In only two were they restricted to the right side, in one case to the epigastrium The tenderness likewise was most pronounced over the regions where the pains were felt most This suggests that when there is spastic contraction in the ascending or transverse colon, there must be an accompanying spasm in the descending colon Among the fourteen patients with constipation from atony four had no pains in the colon region, six had pains in the right iliac fossa, two in the left and two on both sides The roentgenograms show that the ascending colon is not dilated with this "ascending constipation It is liable to lead to the erroneous diagnosis of appendicitis, especially of "recurrent" appendicitis, while mucous colitis rarely entails appendicitis Four of Thaysen s patients had a temperature somewhat above normal along *with pains in the right iliac fossa confirming the assumption* of appendicitis Of Stierlin's eight patients of this type four had had appendicectomy done The disturbances in such cases persist after removal of the appendix as this does not get rid of the cause In short he concludes, the discovery of *Ascendensobstipation* should contraindicate appendicectomy even when everything seems to indicate chronic appendicitis

130 **Influence of Thyroid Secretion on the Standard Metabolism**—Krogh has had occasion to record the metabolic findings in numbers of persons with exophthalmic goiter and myxedema and has been amazed at the remarkable deviations from normal in certain respects In one case of exophthalmic goiter the standard metabolism was found 80 per cent above normal, and in a myxedema patient 40 per cent below normal It is thus rendered evident that the secretion of the thyroid promotes the metabolic changes This assumption was confirmed by experiments on five frogs, described in detail The metabolic findings showed a pronounced increase under the action of thyroidin, although the animals were entirely under the influence of an anesthetic